OCTOBER 1958

CONCRETE

For producers of concrete block, precast and prestressed concrete products and ready mixed concrete

New FCC Split Channel Regulations:

What they will mean to 2-way radio users!

(page 20)

Pastel Colors and White Cement:

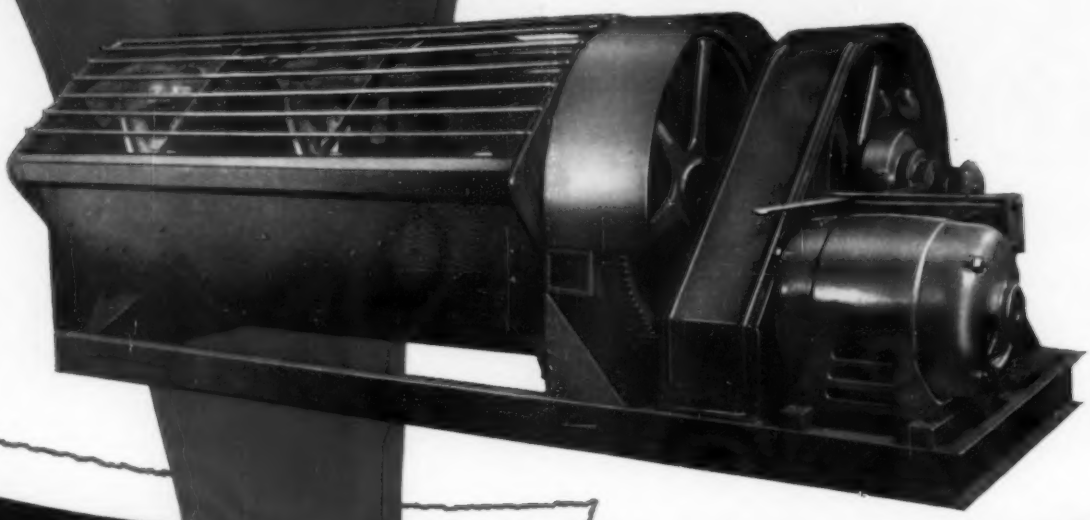
How to produce pastel concrete masonry units!

(page 24)

Block's Best Face Forward!

Safari Hotel, Scottsdale, Arizona

ALL MIXERS LOOK ALIKE



. . . . but check the PERFORMANCE!

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Whether for transferring mixed concrete from the mixer to the main supply hopper on your block machine or for conveying dry material to an elevated mixer or bin, there is a GOCORP skip loader to match every GOCORP Mixer. Vertical or inclined track • 12 to 65 cubic feet capacity • Specials to solve your problem.

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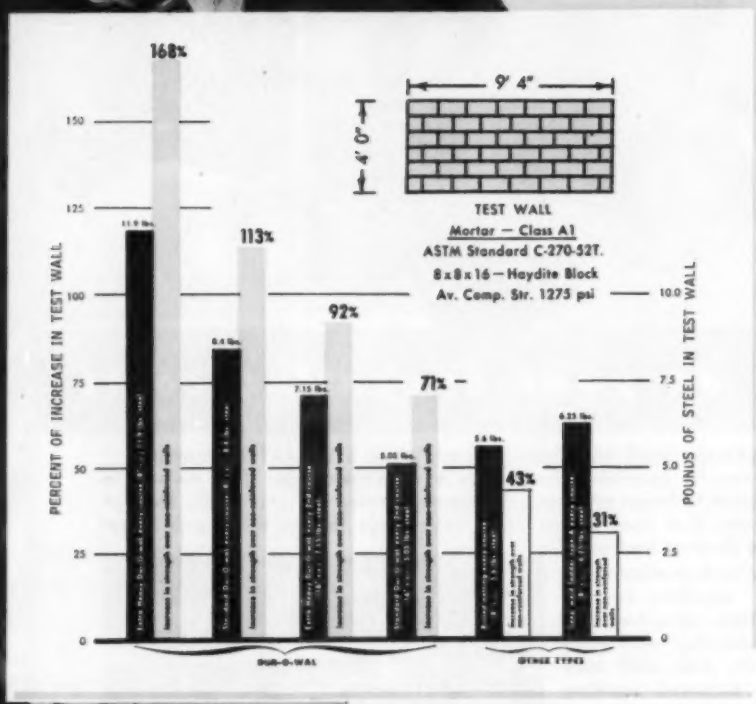

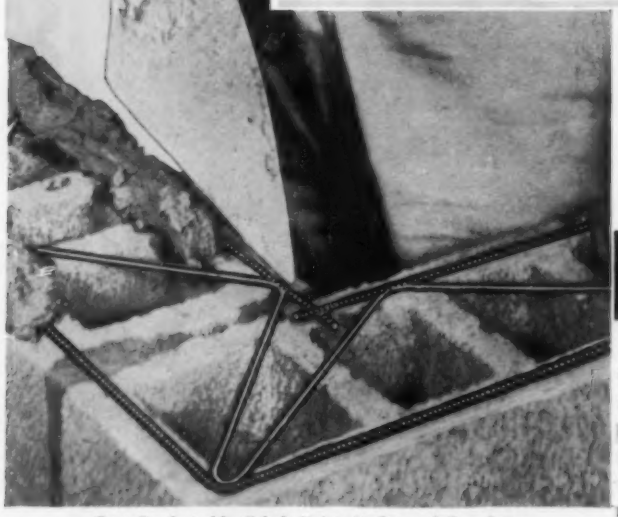

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OCTOBER 1958

CONCRETE

For producers of concrete block, precast and prestressed concrete products and ready mixed concrete

VOL. 66, NO. 10 • EST. 1904 • PUBLISHED MONTHLY BY CONCRETE PUBLISHING CORP. • 400 W. MADISON ST., CHICAGO 6, ILL. • CENTRAL 6-8822

FEATURES FOR THIS MONTH

2-Way Radio and the New FCC Regulations 20

Commercial 2-way radio channels have become increasingly crowded in recent years. To relieve this, the FCC passed new regulations splitting present channels. How these new split-channel regulations will affect 2-way radio users, including many ready mixed firms, is presented in this article.

Pastel Colors, White Cement, and Concrete Masonry 24

Here is another in CONCRETE's series on the use of color in masonry units. This article takes up the use of white cement and the lighter (in color) aggregates to produce softer, cleaner pastel tints. By Gordon W. Schmidt.

Fork Lift Spots Block 26

United Cement Products Co., Wichita, Kan., finds it's profitable, both from a customer and operation point of view, to take a fork lift along to the job site to unload their block.

PCA's New Structural Laboratory, A Huge Testing Machine 28

Here is a detailed description of the PCA's new structural laboratory at Skokie, Ill. Instead of housing a number of testing machines, the entire floor of the laboratory is a testing machine in itself, capable of exerting test forces greater than 10 million lbs.

Elk River's Prestressing Facilities 32

Gordon Evil's article pictures the beds, mobile machinery, and jacking equipment in use at the prestressing plant of Elk River Concrete Products Co., in Minnesota.

A Thought about Brick Block—Editorial 18

With the introduction of the 8 x 8 x 16-in., fired-clay brick block by a producer in the clay products industry, at least one conclusion stands out: concrete masonry's competition is not standing still. We hope the introduction of this brick block will trigger action for a realistic national promotion budget for concrete masonry.

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DEPARTMENTS

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How to Make More Money in the Block Business...

REDUCE

- --hand work
- --guesswork
- --repair work
- --cost per block

INCREASE

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- --block sales
- --profit per block

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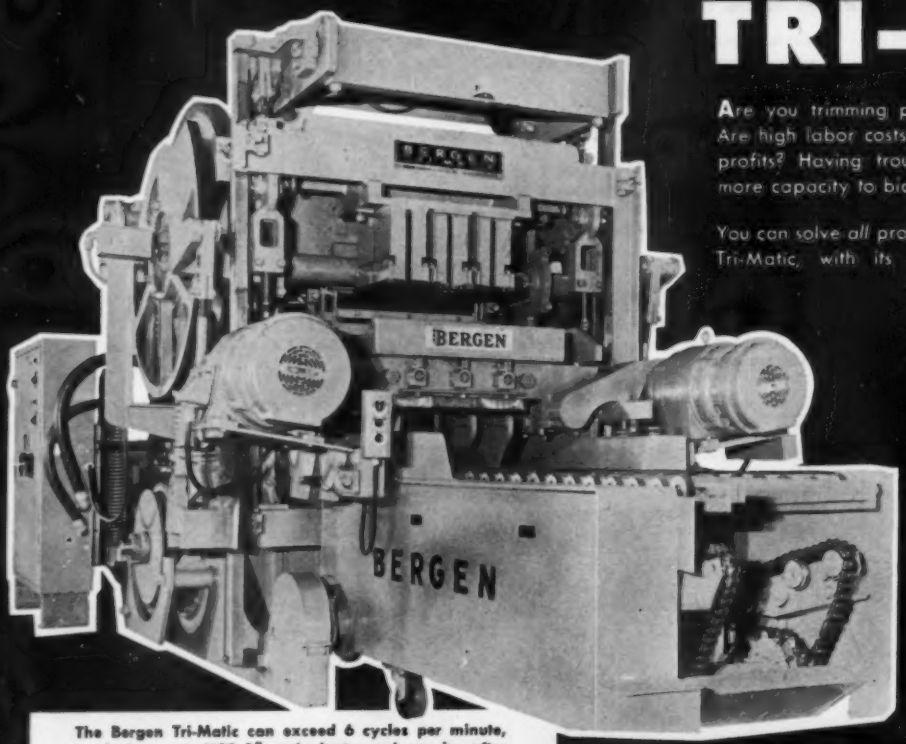

The Bergen Tri-Matic can exceed 6 cycles per minute, producing up to 1100 8" equivalents per hour, day after day, year after year . . . at lower cost per block.

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FROM THE NEWS DESK

Cement Production and Shipments Both on Rise

Increases in both production and mill shipments of portland cement were reported by the U. S. Bureau of Mines for both June and July as compared with the corresponding months in 1957. The Bureau reported that production of finished portland cement in July totaled 29,833,000 barrels, an increase of 47 per cent over July 1957. Mill shipments in July, the Bureau reported were 32,281,000 barrels, an increase of 26 per cent compared with July 1957. The July 1958 shipments were reported as higher in 14 districts and lower in 9 districts than the same month of 1957. The largest increases were in eastern states which had been affected by a cement strike in 1957.

The production figures reported for June were 30,078,000 barrels an increase of 14 per cent over June 1957. June mill shipments were 30,262,000 barrels an increase of 2 per cent compared with the same month in 1957. The June 1958 shipments were higher in 13 districts and lower in 10 districts than June, 1957. Greatest increases were reported in Georgia, Florida, Tennessee, Iowa and Southern California districts.

■

NCMA To Hold 1959 Meeting in Cleveland

The 1959 convention and biennial Concrete Industries Exposition of the National Concrete Masonry Association will be held Jan. 12 to 15 in Cleveland, Ohio. Walter W. Underwood, NCMA executive director, predicts that the four-day gathering will draw close to 5,000 visitors to Cleveland's big public auditorium.

A number of widely-known guest speakers from the fields of government, business and education will be speakers on the convention program. The outstanding leaders in the concrete masonry industry will report on newest developments. Special promotion and technical sessions will be held.

NCMA's 11th Concrete Industries Exposition will occupy the upper and lower Lakeside Halls of the Auditorium. Indications are that a record turnout of exhibitors will display a wealth of equipment and materials used in the manufacture, handling, distribution and use of concrete and concrete products.

● Kay Bowman, Chicago, shows one of the three annual safety competition plaques which NCMA will award at its Cleveland meeting.

All general sessions of the convention will be held from 10 AM until 1 PM in the Music Hall of the Auditorium. The Exposition will be open during the following hours: Jan. 12 (Mon.), 1 PM - 6 PM; Jan. 13 (Tues.), 1 PM - 9 PM; Jan. 14 (Wed.), 1 PM - 6 PM; Jan. 15 (Thurs.), 10 AM - 3 PM.

A full social calendar is being mapped out, highlighted by the Association's annual banquet. Special events are also scheduled for the ladies. NCMA members will be admitted free to both the convention and trade show. Non-members will be assessed a $25 registration fee, but can view the Exposition at no cost. For full particulars, prospective exhibitors should contact William P. Markert, Manager; Concrete Industries Exposition; 38 South Dearborn St., Chicago 3, Ill.

Besser School to Have Longer Technical Course

The Besser School for Block Makers and Block Users announces that the technical session of the school (including mechanical, electrical, materials and methods, curing, cubing and proper use of concrete masonry) has been extended from five school days to eight and one half school days. The additional days were added after student polls indicated that five days was not sufficient time to absorb all of the information presented. The new course dates for the remainder of 1958 are as follows: November 3 through 12 and December 1 through 10. Course dates for 1959 will be released for publication shortly.

■

Costs Break Ceiling, ENR-CD Indexes Show

September construction and building costs were pushed to record levels by hikes in lumber, steel and wage prices, according to Engineering News-Record and Construction Daily reports. The ENR-CD Construction Cost Index for September jumped nine points over August to a record 773.47 (1913=100), 4.8 per cent higher than a year ago. The Building Cost Index, also nine points above the August value, is 534.88 (based on 1913), or 3.6 per cent above 1957. The steel price boost of 4.3 per cent accounts for six points of the increase in the Construction Cost and Build-Cost Indexes. Danger of fire has sharply curtailed logging operations in the Northwest, though demand is growing. Further lumber price increases are expected.

Wage increases due in September and through the rest of the year will be fewer than in July and August, when most contract negotiations ended. The ENR-CD 20-cities average wage for common labor on building and heavy construction edged up 0.2 per cent over August while the skilled labor average (brick-layers,

Height and Density Control Panels, Mold Repair Tables, and a full line of mold attachments and replacement parts.

carpenters, structural ironworkers) moved up 0.4 per cent.

Portland cement prices are off slightly in a few cities now that the 3 per cent freight tax is gone. Cincinnati, Atlanta, New York, and Minneapolis report drops in bulk cement prices of 2 cents to 3 cents a barrel.

■

Food Machinery Adds To Florida Building

Work has begun on construction of an addition to the Florida Division's office building of Food Machinery and Chemical Corp., in Lakeland, Fla. The architects drawing reproduced below illustrates how the new building will appear on completion. This addition to the present office facilities is necessitated by crowded conditions resulting from increases in the staffs of all departments.

The new building, to be constructed of steel, concrete block and prestressed concrete, will house the administrative offices, sales, service, purchasing, personnel and credit departments. It will also include a large conference room-auditorium, reception foyer and employees lounge and rest rooms.

The modern styling of the building will be emphasized on the exterior by the use of decorative concrete blocks and a prestressed concrete cantilevered awning over the main entrance. A patio with a covered walkway will be situated on the south side and areas will be set aside for parking. The completed building, to cost $135 thousand will encompass an area of 8500 sq. ft. The contracted completion date is January 31, 1959. Architect is James R. Dry of Lakeland. Contractor is Templins, Inc., also of Lakeland.

Food Machinery and Chemical Corp. manufactures fruit and processing equipment and Form-Crete steel forms for casting prestressed concrete. It is the exclusive licensed manufacturer of "Tropic Breeze" wind machines in the east.

Clay and Shale Men Convene in Denver

A field demonstration of design mixes for structural lightweight concrete, reports on progress in a broad-phased research program, and evaluation of a commercial plant installation for the reduction of sintered clinker, highlighted the Mid-Year meeting of the Expanded Clay and Shale Association in Denver, Colo., July 21 and 22. R. A. Utiger, president of ECSA, and his firm, Cinder Concrete Products Co. of Denver, acted as host to the group. Sessions were held in the Cosmopolitan Hotel's "Empire Room."

Ralph C. Johnson, sales manager of Simplicity Engineering Co., reported that a Model 40 D-Centegrator installed in the "Beslite" plant of Light Weight Aggregate Corp. at Livonia, Mich., has proven promising in the reduction of sintered clinker. A redesigned impeller has considerably reduced crusher maintenance. Better uniformity of end product, improved gradation and a greater output of fines were noted because of the ability to feed larger material than was possible with the preceding roll crusher. Working about 15 to 20 minutes out of each hour, Mr. Johnson said the machine is producing 150 tons per hour at Livonia. Maintenance problems have been at a minimum, he said. 16 mm. films accompanied the talk.

Lucas E. Pfeiffenberger, technical director of ECSA, gave a comprehensive report on the Association-sponsored program of research and testing. He emphasized that the program is a long-range activity designed to develop data on the performance of lightweight aggregates.

"The Marketing Challenges of Lightweight Aggregates" was the subject of a paper presented by T. R. Berger, executive secretary of ECSA. Mr. Berger said the techniques and opportunities for effective sales promotion of expanded clay and shale aggregates are broad and diverse. He emphasized the importance of trade name identification, distribution of technical data and test results, the use of advertising to explain advantages of lightweight aggregates to architects, engineers and contractors. "While these are people who want hard, statistical facts on why lightweight aggregates do an effective job, they are also receptive to imaginative literature, well-illustrated advertisements and unusual presentations," Mr. Berger said. He urged producers to work in the field with architects and builders and suggested that dealer seminars and close liaison with local and area trade groups can do much to increase understanding of lightweight aggregates.

The annual dinner meeting of the Association was held in the Club Room of the Cosmopolitan Monday night.

Andrew R. Pfeiffenberger, assistant to the president, Bowman Biscuit Co., Denver, talked on "Colorado, the Favored Land," showing a color film covering the four seasons of the year.

The second and final day was given over to a field demonstration of mix designs for structural lightweight aggregate concrete. Victor McIntyre, district engineer of Master Builders Co., presented the demonstration. A tour of Cinder Concrete Products plant closed the sessions. The Association's annual meeting will be held in Cleveland in conjunction with NCMA sessions in January.

■

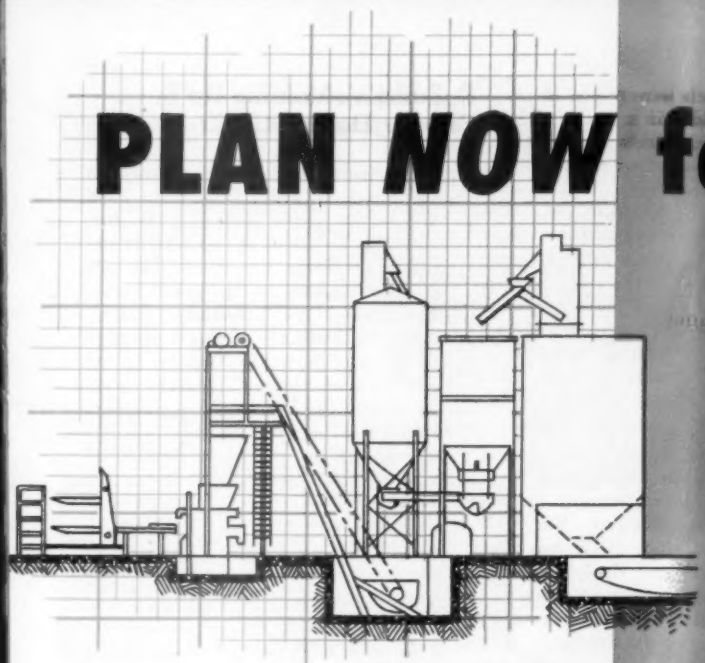
NCMA Directors Plan Six Regional Meetings

Six special regional meetings of the NCMA to be held by the end of the year are planned by the NCMA's board of directors. Plans for these meetings to be held in six different areas were outlined at the mid-year meeting of the board in Chicago, July 28 to 31. Dates and locations of the regional meetings will be announced soon.

Emphasis is to be placed on means of helping members do a more effective job in both promotional and technical fields.

Coinciding with the meeting of the directors, members of the various NCMA committees met in Chicago

PLAN *NOW* for PROFITS!



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Columbia's engineering department with its record of advancement in the concrete masonry industry stands ready to help you prepare for this rising business trend. Columbia's lower cost, hydraulically powered and electronically controlled block plant machinery has been a dominant factor in influencing the rapidly expanding acceptance of concrete unit masonry by architects and builders everywhere. And, the universal acceptance of Columbia's space saving, easily adaptable design by hundreds of plants, stands as further proof of its ability to provide you with sound council when you plan for the future.

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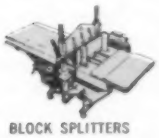
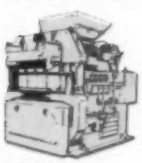
The low original price represents an easily amortized capital investment. Flexible pay-as-you-depreciate plan makes you the owner of this profitable equipment on an easy-to-pay basis.

FROM BLOCK MACHINE TO COMPLETE PLANT, as shown above, Columbia equipment is designed for expansion—to allow you to easily match the growth of the concrete block industry at lowest possible cost.

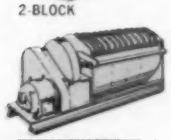

BLOCK SPLITTERS

MAGNETIC RETURN


3-BLOCK

2½-BLOCK

2-BLOCK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COLUMBIA'S COMPLETE LINE OF PLANT EQUIPMENT is designed today to meet tomorrow's production needs. And, the far-sighted plant operator who invests today in new equipment or plant expansion gains the advantage of today's labor and steel prices—bound to rise in future years.

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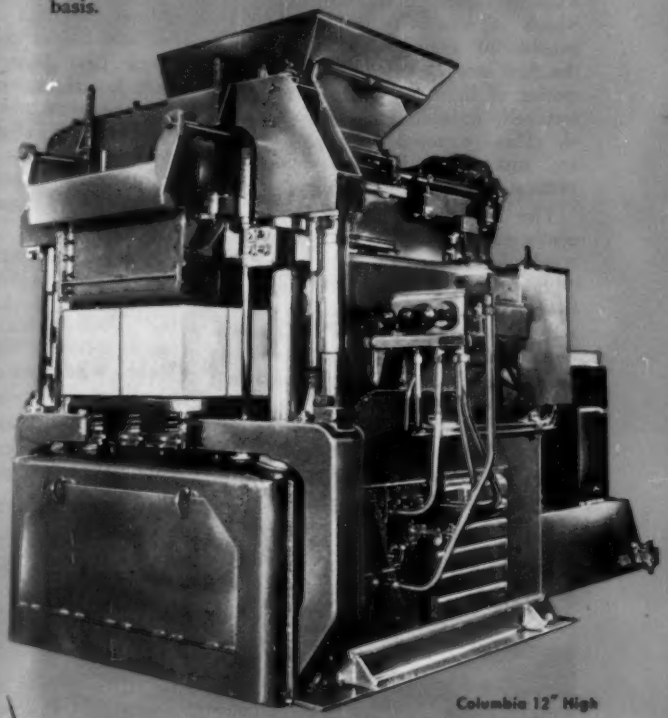
- RACKS and PALLETS
- BLOCK SPLITTERS, hand, semi or fully automatic
- CLUSTER SPLITTERS
- BLOCK SLUMPERS
- STANDARD and SPECIALIZED MOLDS
- STANDARD and MAGNETIC OFFBEARERS
- CLEANERS and OILERS
- POWER and GRAVITY ROLLAWAYS
- HYDRAULIC PUMPING UNITS
- BATCH MIXERS from 12½ to 81 cu. ft. capacities
- MOISTURE METERS
- TRUCK UNLOADERS
- C-202 PLASTICIZERS
- LIFT TRUCKS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MANUFACTURERS AND WORLD WIDE DISTRIBUTORS OF A COMPLETE LINE OF PLANT EQUIPMENT FOR PRODUCTION OF CONCRETE PRODUCTS

and reviewed their activities proposed for the coming year.

The Board of Directors took an important step in creating a Management Information committee to absorb both the Statistical and Accounting Procedures committees. The newly formed body is to operate as a sub-committee.

■

Concrete Wall Panels Speed Star Building

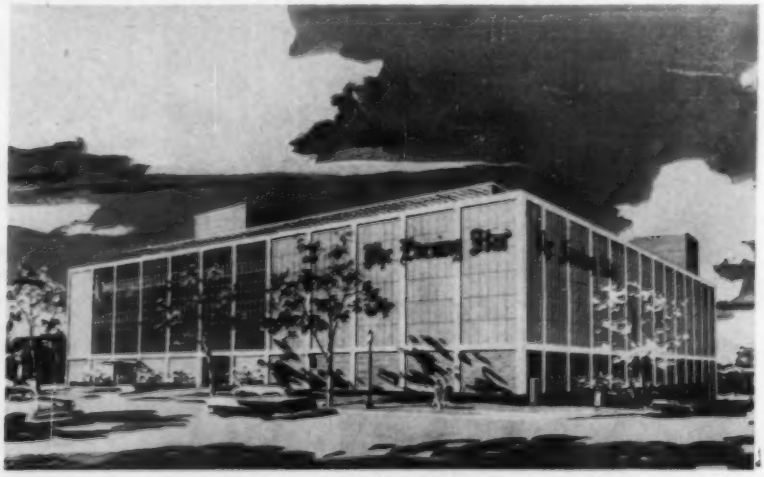
When completed late this year, the new Washington (D.C.) Evening Star building will be one of the nation's most modern and best equipped newspaper plants. Construction of the multi-million dollar printing plant was started in August, 1956. The building comprises five stories and basement containing 397,000 sq. ft., and provision has been made for adding an additional story in the future. Exterior construction of the building, which is now virtually completed, consists of gray ceramic brick for the first story, and above that, four stories of light gray, precast, architecturally finished, concrete wall panels. These exposed aggregate panels are surrounded by horizontal and vertical white trim of similar texture.

The Marietta Concrete Corp. recently erected 244 of their architecturally finished wall panels, each panel measuring six feet in height by twenty-two feet in length. The panels were quickly set in place by merely hoisting them to their position and bolting them to the building framework. These panels are six inches thick with a surface mixture of quartz aggregate which gives an overall eye-pleasing appearance. The curtain wall panels were put in place and trim was added in a matter of a few weeks' time. Panels like these can be erected at a rate of more than 3,000 sq. ft. of exterior wall surface in an eight-hour working day. The panels were manufactured at Marietta's wall panel plant in Baltimore, Md., and trucked to the erection site. Overall supervision of Marietta's panel construction was under the direction of Richard Adams, manager of the company's precast concrete division at the Corporation's headquarters office in Marietta, Ohio.

Wall copings, column covers and the belt course on the Evening Star building were manufactured by the Earley Studios, Rosslyn, Va. The Earley Studios, since 1915, has supplied functional and decorative mosaics and exposed aggregate veneers for governmental, memorial, commercial and religious structures.

The Evening Star is the first building constructed in the District of Columbia using Marietta wall panels. Marietta Concrete Corp. pioneered in the development and manufacture of precast insulated concrete wall panels, and the exposed aggregate wall panels have been designed to combine luxurious exterior appearance with the speed and economy of Marietta's curtain wall construction. These exposed aggregate panels are available in all sizes and modules used in every type of industrial and commercial construction.

General contractor for the Evening Star project is Chas. H. Tompkins Co. Charles S. Leopold Engineers, Inc., Philadelphia, are the mechanical engineers, Congwer, Krass & Webb, Washington, D. C., the structural engineers, while architectural planning and supervision is being handled by Faulkner, Kingsbury and Stenhouse, Washington, D. C.



Building Volume Up But Fear Tightening Credit

Construction contract awards in the 3 months May, June, July 1958 were the largest in history. The current rise in building activity is expected to persist into 1959. The one disquieting fact in the good news, The Value Line Investment Survey states, is that the Federal Reserve Board has begun to tighten up on credit—even though recovery from the severe 1957-58 business recession has been underway only a few months. If the monetary authorities move too far too soon in restricting credit, the Value Line Survey points out, such action could brake the all-important home building industry down to a slow speed by next summer because of rising interest rates.

Total new construction activity held at a high level throughout the 1957-58 recession. But the companies manufacturing the hundreds of components that go into buildings and public works projects did not fare as well as over-all building figures would imply. Inventory retrenchment by dealers and price weakness in some lines compressed profit margins. Now, however, with field stocks for construction materials low and construction activity in a rising trend, the Value Line Survey notes that chances are good for a recovery in 1959. But rising interest rates could take much of the steam out of the revival in home building. The prices of most building material stocks, the Value Line Investment Survey concludes, do not appear to recognize this danger. While many of these issues remain excellent holdings for the long pull, only a few represent sound values for the next 12 months at their current level.

■

U.S. Experiment Station Reports on Admixtures

The U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss., has recently published Technical Report No. 6-481, entitled: "Effectiveness of Mineral Admixtures in Preventing Excessive Expansion of Concrete due to Alkali-Aggregate Reaction." Copies of the report may be obtained from the Director of the Station at 75 cents each.

The report concerns 20 materials representing eight different classes of mineral admixtures which were eval-

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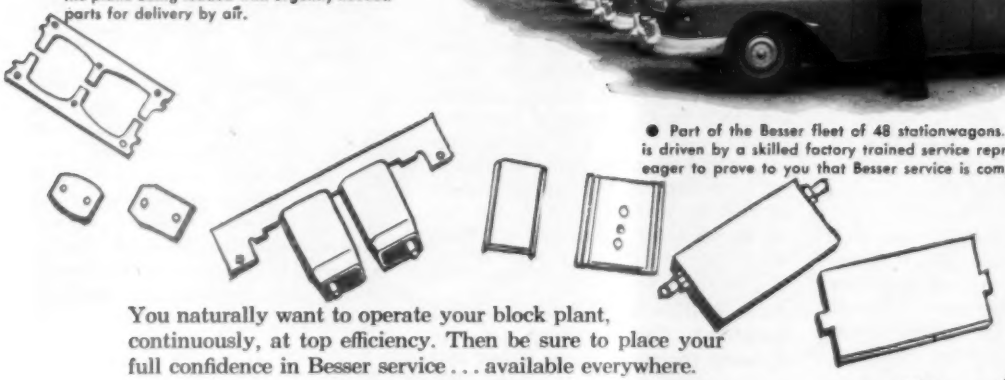
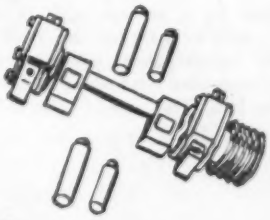
● Besser operates its own company plane, with licensed pilot and co-pilot. Here we see the plane being loaded with urgently needed parts for delivery by air.

● Part of the Besser fleet of 48 stationwagons. Each one is driven by a skilled factory trained service representative eager to prove to you that Besser service is complete.



You naturally want to operate your block plant, continuously, at top efficiency. Then be sure to place your full confidence in Besser service . . . available everywhere.

Besser is the ONLY manufacturer of block machinery that maintains parts stores in strategic locations, throughout the United States. Our service representatives are available around the clock. They go to you instantly, via train, plane or stationwagon . . . eager to render exactly the service you need. And if Vibrapac Parts are urgently required, the Besser Company plane makes rush shipments to air freight and express terminals.



Keep block production rolling with the help of Besser factory-trained service representatives. Get the most from your Vibrapac with Genuine Besser Parts.

BESSER Company

DEPT. 127, ALPENA, MICHIGAN, U. S. A.

Complete Equipment for Concrete Block Plants

BESSER PARTS STORES

ATLANTA
901 Sycamore
Decatur, Georgia
Phone:
DRake 3-5781

BUFFALO
116 Michigan Avenue
Buffalo, New York
Phone:
MOhawk 3990 & 6019

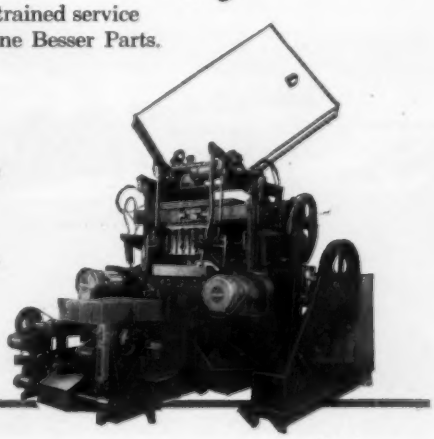
KANSAS CITY
1425 Murray St.
N. Kansas City, Mo.
Phone:
Victor 2-5261

LOS ANGELES
6100 Sepulveda Blvd.
Van Nuys, California
Phone:
STate 5-5457

NEWARK
140 Delancy Street
Newark, New Jersey
Phone:
Mitchell 2-1434

ALPENA
Besser Factory Store
Alpena, Michigan
Phone: 291

BESSER Genuine PARTS



A8-180

uated, using both chemical and mortar bar test methods, for their effectiveness in preventing excessive expansion of concrete due to alkali-aggregate reaction. It was found that the chemical tests cannot be used with reliance to evaluate effectiveness, and the mortar-bar test method needs improvement to increase its precision. Each of the replacement materials evaluated will prevent excessive expansion if a sufficient quantity is used. Correlations were found between effectiveness and fineness, dissolved silica, and percentage of alkali retained by reaction product.

The eight classes of mineral admixtures represented in the tests were: granulated blast furnace slags, natural cements, fly ashes, natural volcanic glasses, calcined opaline shales, uncalcined diatomite, uncalcined quartz, and synthetic pure silica glass.

■

Thin Shell Concrete, Roofs Park Buildings

Thin shell concrete roofs over all the main buildings, are a notable feature of the first unit of Santa Monica Beach State Park, Santa Monica, Calif. Walls of the buildings are concrete masonry. Welton Beckett & Associates, Los Angeles, are architects on the park developments. Richard R. Bradshaw of Los Angeles was structural engineer for the buildings.

Plans for a second park development unit as part of the $430,000 beach improvement program have been completed and work is to start in the Fall. The second unit will include facilities similar to those just completed. The buildings are for dressing rooms, showers, toilets and a concession section. Concrete fire pits are included in the facilities provided in the picnic area. Future construction due to begin soon includes a life guard headquarters building.

Motorola Asks Probe Of Mobile Radio Systems

A petition has been filed by Motorola Inc., two public mobile radio service operators, and three mobile radio maintenance organizations asking the Federal Communications Commission to investigate the operation and regulation of land mobile radio stations and services. The petition questions whether major landline telephone companies should be permitted to engage in mobile radio service, and if so, how they should be regulated in the public interest.

The operators of public mobile radio service signing the FCC petition are Chicago Communications Service, Inc. and General Communications Service of Tucson, Ariz. The mobile radio maintenance organizations joining in he petition are Electronic Communications Service, Inc. of Milwaukee, Wis., Goodenough's, a Janesville, Wis. partnership and Earl Clausen of Milltown, Wis.

The petition points out that there are two classes of public mobile radio operators under FCC rulings, one being the large telephone common carriers such as the Bell system companies and the other being independent or miscellaneous common carriers numbering more than 300. The petition questions whether these independent operators can survive under present FCC rules. The petitioners are especially concerned over the fact that the independent cannot interconnect with the landline telephone exchanges although the telephone mobile common carriers may do so, and calls this an example of discrimination.

■

New Hyster Lift Truck Plant Now Operating

Full production activities are now underway and lift trucks are coming off the assembly line at the new Hyster Company manufacturing plant at Danville, Ill., according to Philip S. Hill, executive vice president. The new plant is located on the outskirts of Danville on a fifty-five acre tract about two and one-half miles from Hyster's original factory in Danville which will remain in operation. Hyster opened its Danville operations in 1946.

James Woodley, manager of the Hyster plants in Danville, describes the new plant facilities as the most modern in the industrial truck business. The building is 200 by 500 feet and is the first of three wings to be built. It houses, at present, a completely mechanized assembly line, a mechanized shipping department, service parts storage and handling department, and a receiving department.

■

Begin Building New Cement Plant in Ohio

Construction work is well under way on a new portland cement plant for the Columbia-Southern Chemical Corp. in Summit county Ohio, according to an article in the Beacon-Journal of Akron, Ohio. The article quoted W. S. Straub, manager of Columbia's Barberton, Ohio plant. The 1,500,000 barrel plant will cost close to $7 million and will employ the newest methods of manufacture. The plant site adjoins Columbia's limestone mine which has been operated since 1944 to supply stone to the company's chemical plant in Barberton.

Columbia-Southern Chemical Corp. is a subsidiary of Pittsburg Plate Glass Co. Columbia has another cement plant at Zanesville, Ohio.

Motorola Private-Line radio... the new kind of 2-way radio

This new concept in 2-way radio communications has been best described by satisfied users..."It's almost as if we had the channel all to ourselves. We only hear our own messages."

Motorola Private-Line radio is completely quiet except when receiving messages from your own dispatcher. Channel Chatter is gone. Drivers no longer have to listen to the constant stream of messages from other radio users on the same channel. Missed and misunderstood messages are virtually eliminated ...overall efficiency is increased.

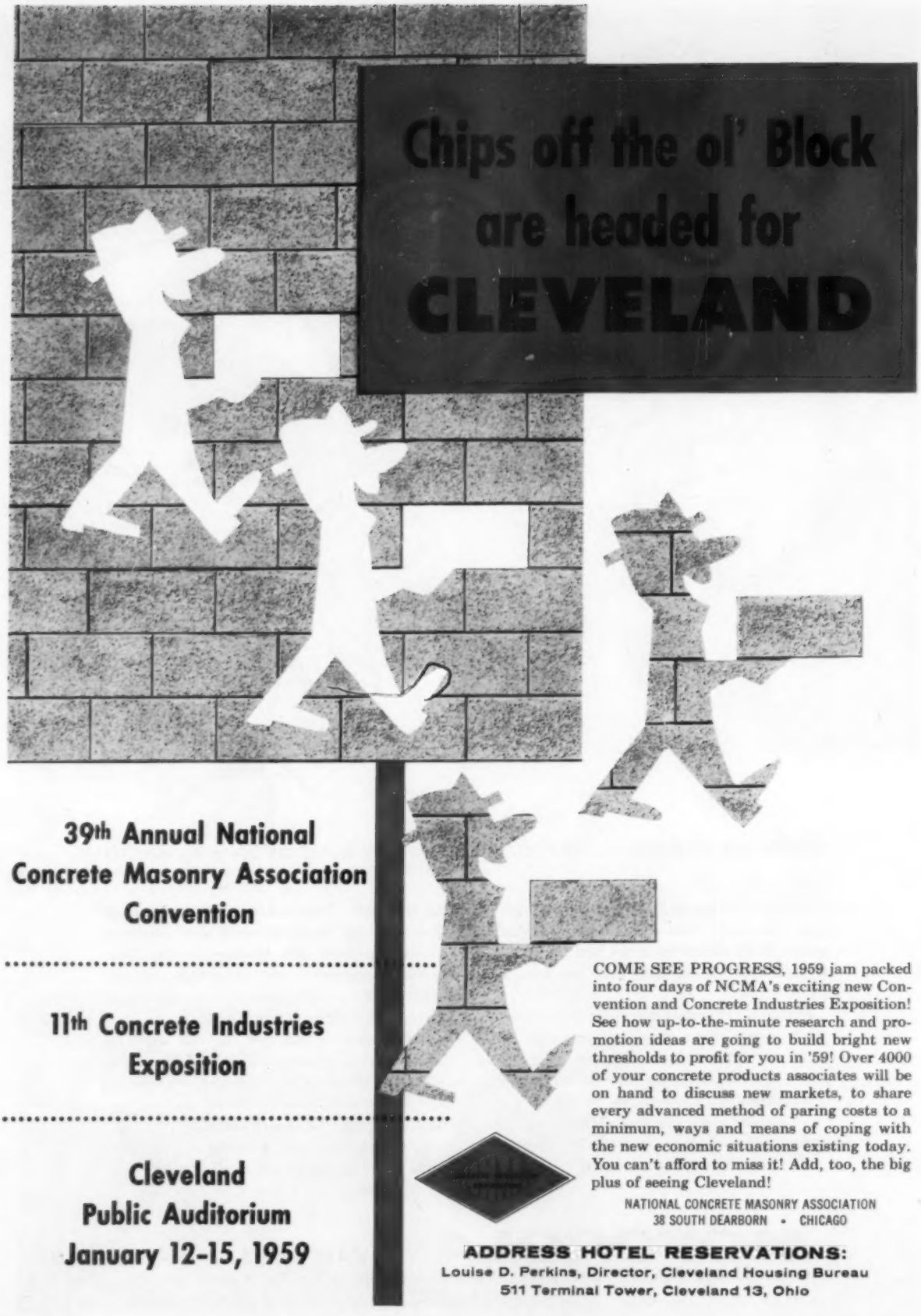
And now new Private-Line radio with *Dual Squelch* makes the changeover easy for those already equipped with Motorola radio. During the transition period, your messages can be received by both present equipment and Dual Squelch Private-Line radio.

New system or old, get the full story on Motorola Dual Squelch Private-Line radio. Call your Motorola communications specialist or write for detailed brochure and case history of how a company like yours can increase profits with Motorola radio.

MOTOROLA *PRIVATE-LINE 2-WAY RADIO*

Motorola Communications & Electronics Inc., A Subsidiary of Motorola Inc., 4501 Augusta Blvd., Chicago 51, Illinois

For more information use postcard facing page 48.



39th Annual National Concrete Masonry Association Convention

11th Concrete Industries Exposition

Cleveland Public Auditorium January 12-15, 1959

COME SEE PROGRESS, 1959 jam packed into four days of NCMA's exciting new Convention and Concrete Industries Exposition! See how up-to-the-minute research and promotion ideas are going to build bright new thresholds to profit for you in '59! Over 4000 of your concrete products associates will be on hand to discuss new markets, to share every advanced method of paring costs to a minimum, ways and means of coping with the new economic situations existing today. You can't afford to miss it! Add, too, the big plus of seeing Cleveland!

NATIONAL CONCRETE MASONRY ASSOCIATION
38 SOUTH DEARBORN • CHICAGO

ADDRESS HOTEL RESERVATIONS:
Louise D. Perkins, Director, Cleveland Housing Bureau
511 Terminal Tower, Cleveland 13, Ohio

Texas Firm Has New Floor and Roof System

Formation of a separate division to market a new floor and roof system, is announced by Prestressing, Incorporated, of San Antonio, Texas. The new division is called "Spanblock". It is proposed to license concrete block manufacturers to make and sell a patented floor and roof system composed of machine made block which are formed into prestressed planks. The planks are described as being 16-in. wide and the manufacturer says they can be fabricated in 4, 6 and 8-in. depths with roof spans up to 34-ft. and floor spans as long as 30-ft.

According to the manufacturer a feature of the planks is a new method of grouting the faces between the blocks which eliminates grinding and assures positive transfer of the pretensioning force.

■

Permanente Increases Its Grinding Capacity

A new cement grinding facility that will provide increased production of finished cement during periods of peak demand is under construction by Permanente Cement Co. Details of the $500,000 project, at Permanente's Northern California plant, were announced by Wallace A. Marsh, vice president and general manager. Main feature is the addition of a new 1,250 horsepower tube mill to existing grinding equipment. The new mill, according to Marsh, will permit grinding of more cement during the peak summer construction season, and additional production of special cements such as used in the construction of highways and dams, and the manufacture of various precast and prestressed concrete products.

Instead of having to add costly storage silos, the plant can take greater advantage of increased clinker storage, which has been raised in the past two years from 200,000 to 500,000 barrels. "Over-all," Marsh added, "the new mill will make us less susceptible to the cyclical nature of the construction seasons. This will mean better service to customers, with continued constant quality of product at all times of the year in all of the plant's marketing areas — Northern California, the Pacific Northwest, Alaska and the Pacific Islands."

The company's Northern California plant has an annual capacity of 8,500,000 barrels of cement and is the West's largest cement facility. Last year the company opened a new 2,500,000-barrel capacity plant at Cushenbury, in Southern California's Lucerne Valley. Kaiser Gypsum Co., a wholly-owned subsidiary of Permanente Cement Co. operates three gypsum products plants at Long Beach and Antioch, California, and Seattle, Washington, as well as an insulating products plant at St. Helens, Oregon.

■

Announce 5 Winners In Architectural Contest

Five architectural students at the University of Virginia, Charlottesville, have won top awards in the annual 'Solite Competition Award' contest. First place winner in the competition for the design of a field house for the University was Arthur G. Marks of Canton, Ohio. Second places went to Joseph Eubank, Jr., of Cape Charles and Stewart Whitehurst of Virginia Beach. Thomas Morrisette, of Norfolk, and Frank Smith, Jr., of Virginia Beach placed third.

The contest, sponsored by the Southern Lightweight Aggregate Corp. of Richmond, is open to fourth year architectural students at both the University of Virginia and the Virginia Polytechnic Institute, Blacksburg. As a part of their regular studies, students are assigned a problem involving the use of Solite lightweight masonry units and/or Solite lightweight structural concrete, and are guided by actual working conditions.

Prizes to the two schools total $1,500 annually. The winners are also given free trips to a meeting of the Virginia Chapter of the American Institute of Architects, where the prizes are awarded and the winning designs displayed. Entries are judged by a panel of nationally known architects.

■

Wood Substitute Is New Laboratory Product

Light-weight inorganic planks and panels, products of the laboratory rather than the forest, may soon supplement the nation's lumber supply, according to scientists at Battelle Memorial Institute, Columbus, Ohio. They have developed a portland cement-base material which they say has many of the desirable properties of wood. The new material is now being produced on a pilot-plant scale for field study.

M. Jack Snyder, in charge of the Battelle group conducting this research, said that the wood substitute is produced by casting a mixture of portland cement and other inorganic materials in molds and steam-curing it. Yet unnamed, the new material developed for Wells Mfg. Co. of South Bend, Ind. is said to have about the same density as wood, weighing only 35 pounds a cubic foot. Like wood, it can be sawed, nailed, or glued. Conventional woodworking tools can be used to work this material, which possesses good flexibility. The laboratory-produced "timber" is said to be firesafe, rotproof, and does not expand in humid atmospheres. While having only about half the strength of hard woods, the material is "strong enough for many jobs now done with wood", Mr. Snyder says.

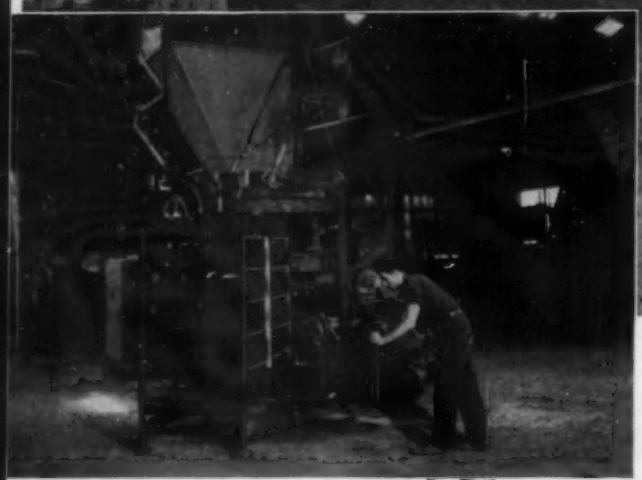
■

Heavy Construction In Record-Breaking Upturn

Heavy construction contract awards have scored the sharpest recovery ever recorded, according to an Engineering News-Record and Construction Daily report. This report says that an unprecedented rally from the 1957 nosedive has pushed the six months total in 1958 to $9.6 billion, 2 per cent above the same period of last year. This is the second largest volume ever recorded during a first half. It is topped only by 1956's record of $11.4 billion. The month of June, with $1.9 million in awards, established a record for a June month. Furthermore it was the sixth consecutive monthly increase. Public construction gets the largest share of credit for boosting contracts. During the second quarter, federal awards jumped to nearly two and one-half times the first quarter volume.

Federal work topped 1957 by 5 per cent, with a total $1.5 billion, during the first six months. This is a new postwar high for the first half. State and municipal public works contracts also soared in the second quarter to push the six month total to a record just short of $4 billion, a 10 per cent hike over 1957.

Another LEADER in the Block Industry!



★ This is the 147th of a series of ads featuring leaders in the Concrete Products industry who are stepping up block production with Besser Vibrapac machines.

(left) Off-bearer removing green block from Vibrapac. (above) Cubing cured block with the help of Besser Bridge Crane Block Cubers. No manual lifting.

BESSER BLOCK CLAMP — Note pivoting feature for placing block into tight cube. Simple controls for hoisting and clamping. All operations are pneumatic.

Yard scene showing stock piles of cubed block. Inspector tests block periodically. Units test as high as 1800 to 2000 psi.

Canadian Plant Uses Besser *Mixers, Vibrapacs and Cubers* for Maximum Efficiency!

Peel Block Co., Ltd., Brampton, Ontario, is an enthusiastic user of Besser equipment, not only for **producing** high quality block, but for **handling** units, as well.

The company installed their first Vibrapac in 1954. Since then, another one was added. They realized, less expensive block machines were available. But, they wanted top quality . . . and they got it. As President David Fisherman so aptly observed: **"Vibrapacs make the best block and you can't beat them for production."**

Peel Block Company has a separate building for cubing block. Here are installed three Besser Bridge Crane Block Cubers for handling block by power. Hand lifting of block is entirely eliminated. Previously, seven men did the cubing by hand. Now, only four men are needed.

To meet the ever-increasing demand for block, the Peel plant operates around the clock . . . 24 hours of the day. Continuous production of high-quality units enables the company to supply the demand, as well as meet competition.

Yes, you can really make money . . . **big profits** . . . with Besser equipment. Why not investigate? Contact your nearby Besser representative for further information.

BESSER Company

Dept. 127, Alpena, Michigan, U. S. A.

A8-181

FIRST IN CONCRETE BLOCK MACHINES

News Announcements from Companies Servicing the Concrete Industries

MANUFACTURER'S NOTES

Bucyrus-Erie Co., South Milwaukee, Wis., has added Robert G. Allen, executive vice president in charge of sales and manufacturing to its board of directors and executive committee. This action was taken at a board meeting in the company's new drill manufacturing plant in Richmond, Ind. Before joining the Bucyrus-Erie organization as vice president in 1957, Mr. Allen had been president of the Pesco Products and Wooster divisions of Borg-Warner Corp. at Bedford and Wooster, O.

■

Marquette Cement Manufacturing Co., Chicago, has appointed Howard Hanks, Jr., operations engineer. Mr. Hanks was formerly consulting service engineer for E.I. du Pont de Nemours. Before his employment by du Pont he had been engineer and assistant superintendent at a Lone Star Cement Corp. plant.

■

Automatic Spring Coiling Co., Chicago, has elected H. Rodney Bolin, president. Mr. Bolin was previously vice president and general manager. Robert G. Lambrecht, formerly assistant general manager was elected general manager to succeed Mr. Bolin. Herbert J. Bolin, continues as board chairman. The company makes precision mechanical springs.

■

C. S. Johnson Company, has selected the Wilson Equipment & Supply Co., of Cheyenne, Wyoming as distributor of Johnson concrete batching products in that state.

General Portland Cement Co. directors and directors of **Consolidated Cement Corp.**, both with headquarters in Chicago, have each created the office of Chairman of the Board and announced the election of Smith W. Storey to that office. Mr. Storey continues as president of both companies. E. L. Gibson has been named executive vice president of the two companies.

■

Calcium Chloride Institute has announced changes in the territory of a number of its field engineers in a move to offer engineering service to more calcium chloride users. The territory assignments are as follows: From Philadelphia, William J. O'Brien will serve Delaware, Maryland, Pennsylvania, New York and New England states; Keith M. Saville, with headquarters in Peoria, Ill., will cover Indiana, Illinois, Missouri and Iowa; from Racine, Wis., Harry A. Smith will work in Michigan, Minnesota, Wisconsin and in the Chicago area; Henry B. Aikin in the Institute's Washington, D.C. headquarters, will work with Federal agencies in that area and also cover the states of Virginia, West Virginia and North Carolina; Gordon K. Owen, with headquarters in Lexington, Ky., will continue to cover Kentucky, Ohio, and Tennessee and will add Alabama and Georgia.

■

The Lithibar Company, Holland, Mich., manufacturers of Imperial concrete block machines, joist and briquette machines, mixers, skip hoists and block splitters has named two new exclusive representatives. These are Roland D. Doane, Milwaukee, Wis., to cover Wisconsin,

R. G. ALLEN

HOWARD HANKS

R. G. LAMBRECHT

the Upper Peninsula of Michigan and Raymond M. New of Buffalo, N.Y. as representative for Western New York state.

■

Cardinal Scale Manufacturing Co., Webb City, Mo. and the **L. R. Murphy Scale Co.** of Sacramento, Calif. have joined forces to market heavy duty scales under the name of "Murphy-Cardinal." The scales will be manufactured and assembled at the Cardinal plant in Webb City, utilizing the design, patents and features of scales which were pioneered by the Murphy company. Distribution will be in the Midwestern and Eastern trade area.

■

Hyster Company, Portland, Ore. has announced three key appointments in its Tractor Equipment division. Paul Hinds, personnel manager of the company's operations in Peoria, Ill., has been named assistant manager of the Tractor Equipment division with headquarters in Peoria. He has been with Hyster for 13 years. At the same time, Dean Polson was made manager of the Martin Trailer division plant at Kewanee, Ill. He was controller and purchasing agent of the Martin Machine Co. before the merger of that company with Hyster. In another appointment Rex McCormick, formerly sales manager of the Martin Co., was made assistant sales manager of the Hyster Tractor Equipment division.

■

The Four Wheel Drive Auto Co., Clintonville, Wis., has selected six new dealers for its ready-mix and transport trucks and other specialized heavy-duty vehicles. The new FWD dealers are: Mitchell Sales & Service, Inc., Youngstown, Ohio; Ortruc, Inc., St. Louis, Mo.; Perry Pontiac Co., Carbondale, Pa.; Brewster Fire Equipment Co., Brewster, N.Y.; Construction Equipment Parts, Inc., Orlando, Fla.; and Wilco Machine Works, Inc., Memphis, Tenn.

■

Dewey and Almy Chemical Division, W. R. Grace & Co., Cambridge, Mass., announces appointment of Walter Adler, Jr., as sales product manager and Melville E. Prior as technical service manager of the Construction Chemical department. Mr. Adler will direct sales of WRDA, the firms water reducing agent; Darex AEA and Airalon, air-entraining agents for concrete; Daraweld, concrete bonding agent; Daracone, masonry water repellent and Daratard, a concrete retarder. Mr. Prior will specialize in technical assistance and service to distributors and customers.

■

Inland Bin Corporation, Toledo, O., has appointed W. R. Miller as vice president and general manager. The recently formed company manufactures portable concrete plants and cement handling devices. Mr. Miller was with the Erie Strayer Co. for the past five years. He is a registered civil engineer.

■

Lehigh Portland Cement Co., Allentown, Pa., announces the retirement of C. Glenn Browning, executive vice president-sales, after 37 years of service. The retirement, effective Dec. 31, 1958 is at the request of Mr. Browning. He will continue to serve as a director of the company. Ralph L. Browning, vice president-sales for the last six years will succeed Glenn C. Browning as head of the sales division.

■

Worthington Corporation, Harrison, N.J., reports the election of A. E. Carter of Ann Arbor, Mich., as vice president of manufacturing. Mr. Carter succeeds Leslie C. Ricketts who is to be Group vice president of five Worthington operating divisions in New Jersey and Massachusetts.

■

The National Colorcrete Advisory Board has been established by concrete products manufacturers who are using Colorcrete. According to Russell C. Reeve, executive secretary, headquarters of the Advisory Board will be in Chicago. The following five men have been named as members of the Board: Sam D. Smith, Macomb Colorcrete Co., Roseville, Mich.; R. L. Fifer, Fifer Industries, Inc., Louisville; James L. Stewart, Alamo Jetcrete Co., Abilene, Texas; James A. Simpson, Buchanan, Mich.; Dale Fisher, Colorcrete Florida, Inc., Lake Wales, Fla.

James A. Jones, Jr. has recently joined **The Prescon Corporation** as structural engineer in the company's Corpus Christi, Texas office. He holds a civil engineering degree from Georgia Institute of Technology, class of 1956. He was previously a junior engineer with the state highway department of Georgia. The Prescon Corporation engineers and manufactures both coated and grouted post-tension steel tendons used to prestress concrete for all types of structures for added strength and flexibility.

■

Four Wheel Drive Auto Co., Clintonville, Wis., has organized a Marketing division to be headed by G. F. DeCoursin, formerly vice president-sales, as vice president-marketing. The new division replaces the previous sales division and gives Mr. DeCoursin charge of product origination and product development as well as sales.

■

Schupack and Zollman, New York and Newtown Square, Pa., announce the formation of a consulting engineer partnership to specialize in precast and prestressed concrete. Morris Schupack was formerly vice president and chief engineer of the Preload Co. Charles C. Zollman has been a partner in the engineering firm of Charles C. Zollman & Associates for the past ten years.

■

Bucyrus-Erie Co., South Milwaukee, Wis., announces the appointment of Charles Parthum as sales promotion manager. Mr. Parthum was formerly with the Harnischfeger Corp., Milwaukee as director of public relations, sales and advertising.

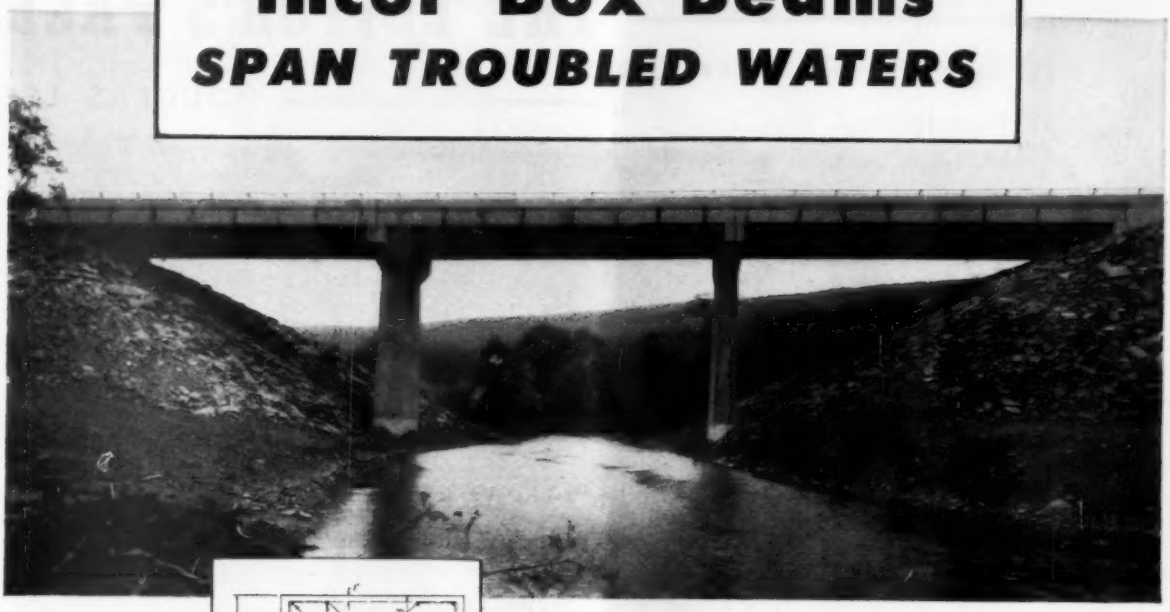
■

Houghton-Arnold Machinery Co., Portland and Bangor, Me., has been selected as a distributor for the Bucyrus-Erie Co., South Milwaukee, Wis. The assigned territory includes the entire state of Maine and Coos County in New Hampshire.

■

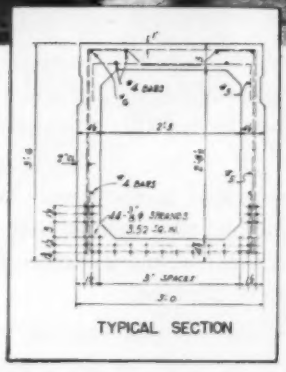
A. H. Cox & Co., South Seattle, Wash., has been named distributor for Koehring-Johnson mixers in northwestern Washington.

82-Foot Prestressed 'Incor' Box Beams SPAN TROUBLED WATERS



HOLLOW BOX BEAMS

Rectangular void, for economy in weight and material, runs length of beam. Total prestressing force—392 tons per beam. (below) Bridge length is 244 feet. Spans consist of 12 units, 36 inches wide. Deck width, 36 feet.



TYPICAL SECTION

● Among the flood control projects in the State of Pennsylvania is the Stillwater Reservoir that impounds waters of the Lackawanna River. Relocation of the highway in that area was part of the project, which included bridging the east branch of the river.

Need for economy and speed of erection in construction of the bridge determined the use of 36 long-span, prestressed, hollow box beams, each measuring nearly 82 feet in length, weighing 31 tons. Fabricated by Atlantic Prestressed Concrete Company in Trenton, New Jersey, the beams were transported over mountainous terrain to job site—a distance of 170 miles.

Economies were effected in the casting operation through use of 'Incor'*, America's FIRST high early strength portland cement, making possible early stripping of forms and fabrication at production-line speed.

Fabricator and engineers alike merit high praise in solving the knotty problems of transporting and erecting these giant beams—an outstanding performance in efficiency and skill.

*Reg. U.S. Pat. Off.

STILLWATER RESERVOIR PROJECT
Corps of Engineers, U. S. Army, Baltimore, Maryland

General Contractor
LATROBE ROAD CONSTRUCTION, INC.
Latrobe, Pennsylvania

Consulting Engineers
GANNETT, FLEMING, CORDDRY & CARPENTER, INC.
Harrisburg, Pennsylvania

Supplier of Prestressed Members
ATLANTIC PRESTRESSED CONCRETE COMPANY
Trenton, New Jersey

'Incor' Concrete supplied by
WARNER COMPANY
Morrisville, Pennsylvania

LONE STAR CEMENTS COVER THE ENTIRE CONSTRUCTION FIELD

LONE STAR CEMENT CORPORATION

Offices: ABILENE, TEX. • ALBANY, N.Y. • BETHLEHEM, PA. BIRMINGHAM • BOSTON • CHICAGO • DALLAS • HOUSTON INDIANAPOLIS • KANSAS CITY, MO. • LAKE CHARLES, LA. • NEW ORLEANS NEW YORK • NORFOLK • RICHMOND • SEATTLE • WASHINGTON, D.C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 21 MODERN MILLS, 48,900,000 BARRELS ANNUAL CAPACITY

For more information use postcard facing page 48.

THE EDITOR'S PAGE

DOUGLAS LEE

A Thought about Brick Block

Most concrete masonry producers have heard or read about the "brick block," the clay products industry's recent development by which it hopes to recapture the backup market.

Briefly, the brick block, as manufactured at Burns Brick Company, Macon, Georgia, is an 8 x 8 x 16-inch fired clay unit. Burns is reported presently producing 3,000 units a day, but plans to step this up to 20,000 units in the near future.

Other claims for the unit are that it is priced competitively with "other materials of the same size" (presumably this means concrete masonry units), is a two-core unit, weighs 28 pounds, has a compressive strength of 1,200 psi., and water absorption of 12 per cent.

On the basis of the information so far available, this new clay unit would seem to pose an additional competitive problem for the concrete masonry industry which, we think it fair to say, has enough problems without it. Until more is known about the new product, however, particularly until it has proved its performance and acceptance, let's not any of us start reaching for the panic button.

One conclusion does seem entirely justified. The clay products industry is not standing still in the competition for the construction dollar. Neither are the promoters of steel, plastics, aluminum, glass, lumber, and potently, we think, other forms of precast concrete products.

Maybe the time has finally arrived for all of us to stop *talking* about the frightening pittance we spend for national promotion of concrete masonry, as compared with what is spent to promote competitive materials, and start *doing* something about it!

"NEW SMITH SAND SPREADERS keep our fleet rollin' all winter!"

When calls for concrete fall with the thermometer PUBLIC TRANSIT AUTHORITIES' demand for sand and salt spreading *keeps profits up!*

Every dollar brought in during the winter when an expensive fleet of truck mixers ordinarily stands idle is a **velvet** dollar.

Use of salt for ice control increased 25% last year — according to the Wall St. Journal a record 2,000,000 tons were ordered for the '57-'58 winter — with a further uptrend expected. And to mix sand and salt, what would be easier than doing it in the truck mixer drum.

ONE MAN mixes and spreads, the driver himself — from the truck cab by Smith remote controls. With a Smith its possible to blend salt into sand in exact proportions . . . no more or less than pavement conditions require (slush, freezing rain, snow, etc.) . . . thereby avoiding excessive salt spread common to hand methods. Spreading action is close to the ground . . . goes under cars, not on them. This is the kind of perfect blending and controlled spreading in demand by Public Transit Authorities who must keep buses on schedule in all kinds of weather. And with a Smith, spreading is faster . . . covers a greater area than the old method where a second man shovels from the back of a truck.

Check with your Smith distributor today — see how easy it is to equip your fleet with the hydraulically operated sand spreaders — **and turn "the dead of winter"** into a busy season!

roadway AREA your mixer can handle

Road Width	5 Yd. Mixer	6 Yd. Mixer	7 Yd. Mixer	8 Yd. Mixer	9 Yd. Mixer
SAND ALONE					
12′	13,200′	15,840′	18,480′	21,120′	23,760′
15′	10,560′	12,672′	14,784′	16,896′	19,008′
20′	7,920′	9,504′	11,088′	12,672′	14,256′
24′	6,600′	7,920′	9,240′	10,560′	11,880′
SAND AND SALT					
12′	26,400′	31,680′	36,960′	42,240′	47,520′
15′	21,120′	25,344′	29,568′	33,792′	30,016′
20′	15,840′	19,008′	22,176′	25,344′	28,512′
24′	13,200′	15,840′	18,480′	21,120′	23,760′

NOTE: *Figures for Sand Alone are for spreading a 12′ wide path at the rate of 1/2 mile per cu yd. Figures for Sand and Salt are for the same width at the rate of 1 mile per cubic yard. (Road conditions can vary these ratios somewhat.)*

OLD WAY

An extra man is needed to hand shovel from the truck. By the hour or load this is more costly — delivers fewer payloads per day.

NEW WAY

Smith Sand Spreader perfectly proportions sand and salt, spreads a path up to 60 ft. wide. Check the chart at left!

The T. L. SMITH COMPANY • Milwaukee 1, Wisconsin • Lufkin, Texas

affiliated with Essick Manufacturing Company, Los Angeles, California.

SMITH

A8-4064

2-WAY RADIO . . .

and the recent FCC regulations

Several new regulations of positive interest to the ready mixed concrete industry have been passed by the Federal Communications Commission.

The phenomenal increase in the number of 2-way radio users of all types in recent years has caused crowding of many available radio channels. Since most of the radio spectrum is already in use by government or commercial activities, the only solution available to obtain additional channels for the land mobile services was the creation of more channels from available space. This has been done by splitting existing radio channels in two, three, or by otherwise closing the gap between present channels.

Formerly, 40 kilocycles spaci g was allowed for channels in the low band (25-50 Mc.), 60 kc. for those in the VHF band (150-174 Mc.), and 100 kc. for those in the UHF band (450-470 Mc.)

The new rules, fittingly called "split channel" rules, have reduced this spacing to 20 kc. in the low band, 15 and 30 kc. in the VHF band and 50 kc. in the UHF band.

By thus splitting the former wide band channels, it is now possible to provide additional channels for previously eligible 2-way radio users and also provide channels for entirely new categories, which, too, have been established in the new rules.

What does it all mean to the ready mixed producer?

1) Old radio systems will have to be converted to new technical standards to make possible "split channel" or narrow band operation;

2) This conversion will have to be completed by certain dates;

3) New frequency allocation and eligibility rules make it easier for all ready mixed operators to be licensed for the most effective radio system; certain operators, however, will have to change frequencies to conform to the new rules.

These points will be discussed one at a time.

Split Channel Specifications

Very technically, the new split channel technical standards specify that:

a) transmitter modulation deviation be reduced to plus or minus 5 kc. from former standard of plus or minus 15 kc. in frequency bands below 162 Mc.;

b) frequency stability in the low band be maintained at .002 per cent; at .0005 per cent in the VHF band and .0005 per cent in the UHF band, compared to former standards of .02 per cent, .005 per cent and .0005 per cent respectively;

c) a low-pass audio filter be included after the modulator stage in the transmitter to reduce unwanted higher order audio frequencies from being transmitted.

In layman's language, these new standards mean mobile and base station transmitters must maintain tighter specifications to operate within the narrower split channels and avoid interfering with adjacent channels.

Conversion of old equipment to the new standards varies in expense and complexity with the type of equipment in use.

Although the FCC is not concerned with the technical characteristics of receivers other than to be certain they cause no interference with other radio users, several problems arise when operating wide band receivers in conjunction with narrow band (split channel) transmitters.

Frequency stability, bandwidth, and audio recovery in the receivers should be altered for full compatability with transmitter standards if a user is to enjoy best radio system performance. Here, best performance means, for one thing, the avoidance of interference caused by adjacent channel users.

Timetable for Conversion

When must these changes be made?—

Any ready mixed producer starting a new radio system after August 1, 1958 must operate equipment conforming to the three split channel requirements, (deviation, stability, audio filter) at once. This applies not only to operators going to radio control of their fleets for the first time, but also to those who for some reason or other may be changing frequencies or locations.

In existing systems, already licensed, the deviation adjustment of the transmitters must be completed by February 1, 1959. All other split channel standards must be conformed to by November 1, 1963.

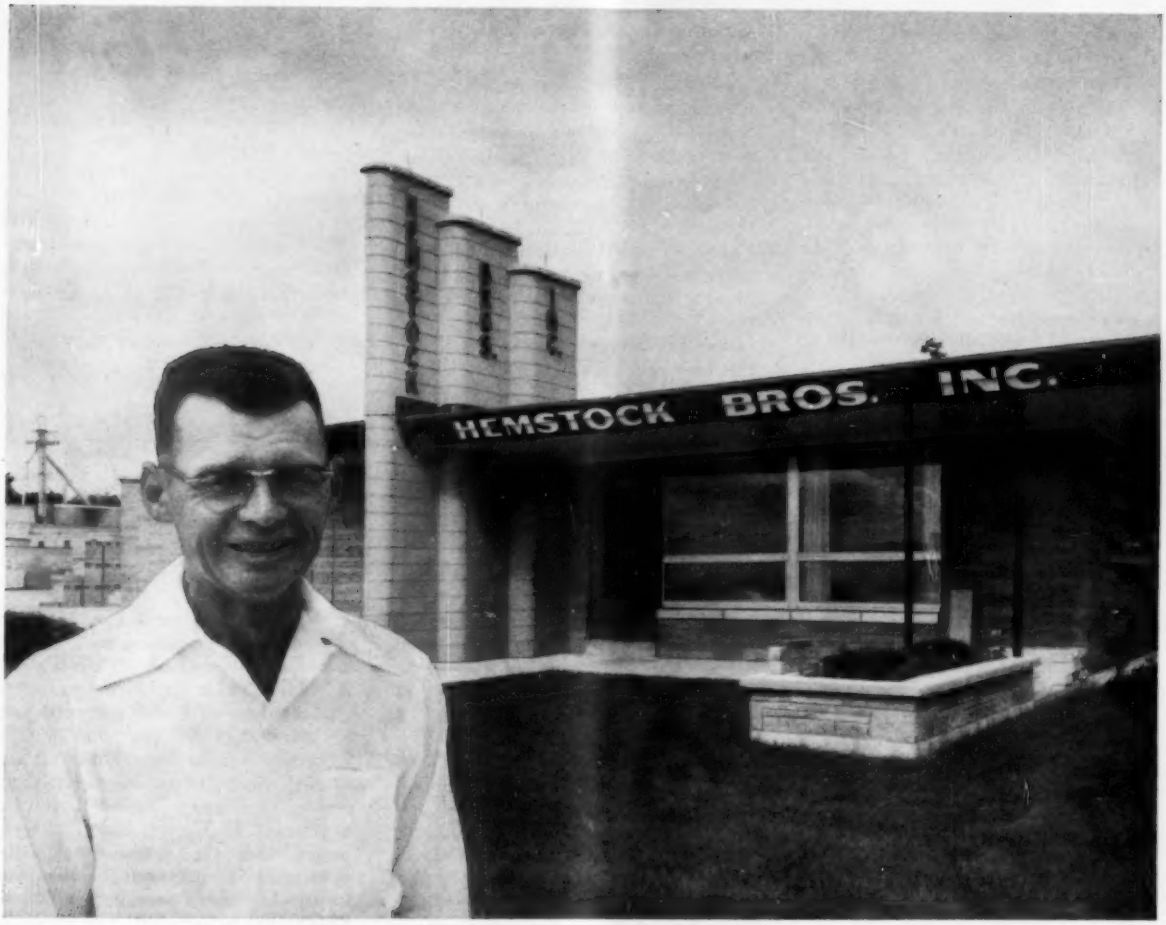
So far this discussion of the rules merely points out what must be done by the ready mixed operators to conform to the regulations. The last phase tells what the new rules do for the producer.

Frequency Allocation and Eligibility

With the availability of many more channels, the FCC changed their plan for allocation of frequencies or channels to the various radio services as well as the rules as to who is eligible for a 2-way radio license.

Under the old wide band rules, ready mixed operators were generally licensed in the Special Industrial Radio Service, provided they were not operating within a metropolitan area of more than 500,000 population.

These operators located in such large cities were licensed in what is



"Sales are up 10%! We've added a whole new business with the newer types of concrete masonry!"

Says **CECIL HEMSTOCK,** ***President of Hemstock Bros. Concrete Masonry Products, Inc., La Crosse, Wis.***

"There's real volume in the housing field with this modern concrete masonry—our sales show that! We've had to enlarge our facilities to meet demands. And with the higher profit margin on these units, every sale is extra profitable."

Across the country, aggressive concrete masonry manufacturers are getting a growing share of the housing market with the newer types of product.

New shapes, textures, colors, patterns of laying, are stimulating a whole new interest in concrete masonry for exteriors—and interiors. Suited to any house style, any neighborhood, these masonry units win acceptance from architects, builders, financing agencies, as well as home buyers.

As so many business-seeking manufacturers have found, there's real profit opportunity with concrete masonry that fits America's modern living ideas—with today's new-type *living concrete.*

PORTLAND CEMENT ASSOCIATION
A national organization to improve and extend the uses of concrete

known as the Citizens Radio Service or the "Citizens Band."

The Special Industrial Service used frequencies in the low band (25-50 Mc.), the VHF band (150-172 Mc.) and the UHF band (450-460 Mc.) This meant the operator had a variety of equipments to choose from, offering low, medium and high power, and so, short or long range. The Special Industrial Service rules restricted operators, however, to broadcast of messages relating only to the delivery of ready mix. This meant no calls relating to sales, credit, collection, payroll or what have you. Besides ready mixed operations, this Special Industrial Service was also open to a limited number of other industries.

The Citizens Service, on the other hand, was open to any United States citizen for any type of personal or business communications with power restricted to about 20 watts output. Moreover, this service used the channels from 460-470 Mc. Equipment operating in this ultra high frequency region is slightly higher priced than others. The low power and wave length characteristics also cause shorter ranged operations in this service, as a rule.

Under the new rules, the setup has been altered to a great extent. The result is greatly beneficial to the producer.

New channels have been authorized to the Special Industrial Service and eligibility has been further restricted to only a very few, high-priority type industries, including the ready mixed industry. This means more channel space will be available for the ready mixed operator.

Another change also eliminated the geographical limitation so that all ready mix operators, no matter where located, are eligible for licensing in this service. The old restriction on the types of communications permitted still remains, so messages must pertain only to delivery of ready-mix concrete.

Many of the new split channels are allocated to an entirely new service called the Business Radio Service. This group of frequencies is available for all commercial enterprises. All types of communications relating to the operation of the enterprise are permitted. Frequencies are available in all communications bands, and high and low powered equipments can be used.

Ready mix operators are eligible for licensing in this service and may even use radio here for talking with salesmen, credit collectors and others not directly associated with ready mix delivery.

The Citizens Service is still available for all types of communications.

In the new allocation plan, while the number of Special Industrial channels has increased, certain frequencies have been taken from it. These are 27.39, 27.43, 27.47, 35.90 and 35.94 Mc. Users licensed on these frequencies in the Special Industrial Service must apply for a new frequency license by 1963 in the Special Industrial Service or convert to the Business Service.

The FCC has allowed a five year equipment amortization period for those Special Industrial licensees being forced to change frequencies. These operators must be converted by June 15, 1963.

Changing to another frequency in the same band (25-50 Mc., 150-174 Mc., or 450-470 Mc.) usually requires only changing of the transmitter and receiver crystals. Switching over to a frequency in a different band from the one a ready mixed produce is using requires complete unit replacement.

Prestressed Congress Report Now Available

The Cement and Concrete Association of Great Britain has announced immediate availability of the "Proceedings of the Second Congress of the Federation Internationale de La Precontrainte (International Prestressing Federation)." This 990-page book, over two and one-half years in preparation, describes new developments in prestressed concrete since the First Congress was held in 1953.

Engineers from 30 different countries attended the Second Congress held in Amsterdam in 1955. The Proceedings include all papers, general reports, discussions and other congressional communications in the language in which they were presented at the Congress — English, French or German. General reports and communications are in all three languages.

The Proceedings cover the following topics: function of grouting and anchorages in the behavior of prestressed elements; experience and problems concerning the manufacture and use of steel for prestressing; progress of precast, prestressed work in the factory and the assembly by prestressing on the site of precast units; moment distribution in statically indeterminate prestressed structures beyond the elastic phase; and influence of plasticity on the strength and instability of thin prestressed shells.

Post-free copies may be obtained by making a $15 check payable to the Cement and Concrete Association, address: Federation Internationale de la Precontrainte, Terminal House, Grosvenor Gardens, London, S. W. 1, England.

Permanente Buys Stock Of Olympic Cement Co.

Permanente Cement Co. has purchased the Olympic Cement Co., Ltd., it was announced July 29 by Wallace A. Marsh, vice president and general manager of Permanente. Owners of more than 98 per cent of the 1,000,000 shares outstanding in the English-owned Olympic company accepted Permanente's offer to buy at a price of $8.57 per share. It is expected that the remainder of the stock will be acquired in the near future. Olympic's working capital of $2,000,000 is included. The purchase is being financed by a five-year term loan provided by the same seven western banks that participated in the financing of Permanente's recently completed expansion program.

Olympic's plant at Bellingham, Wash., has an annual capacity of 1,750,000 barrels of cement, along with ample raw materials deposits and storage facilities at Seattle. "The acquisition will strengthen our marketing positions in the Pacific Northwest and Northern California," said Mr. Marsh. "We expect to be able to raise production of cement at the Bellingham plant which has been operating below capacity since its recent expansion. This will substantially increase the amount of cement available to Northern California and Western Nevada because it will no longer be necessary for Permanente to fully supply Northwest demands for cement from the Company's Bay Area plant."

To provide continuing service to customers, Permanente's existing Pacific Northwest Division and Olympic will be operated as separate divisions and will market their present brands of cement individually.

SIMPLE EARTH MOUND FORM eliminated falsework, simplified circumferential prestressing and speeded placement of concrete. Note uncompleted form for ring girder at base of the mound.

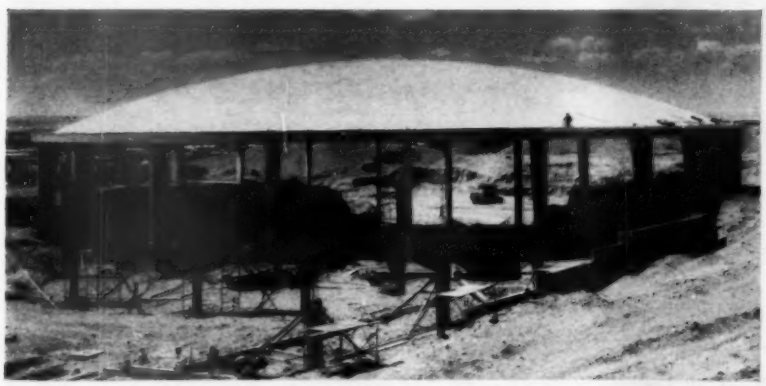
Dirt cheap form for concrete roof

A MODERN MOUND BUILDER saved at least $50,000 in shoring costs by pouring this auditorium roof dome on a mounded earth form . . . then excavating.

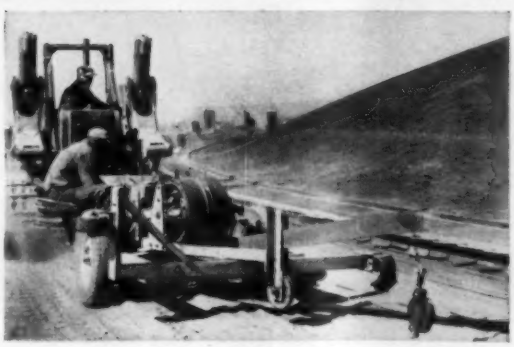
The 120,000 cu. yd. sand and gravel mound was built up and shaped within a ring of reinforced concrete columns varying with the terrain from 24′ to 42′ high. Excavating the mound left the dome sitting pretty on the columns.

Most of the 218′ dia. shell was poured directly on the compacted earth. A 30′ wide band at the periphery, the only part of the roof which is exposed in the completed auditorium, was lined with plywood panels to give the concrete a smooth under-surface. The 23′ high dome tapers from 9″ thickness at the periphery to 5″ at crown. It is ringed by a reinforced concrete girder, post-stressed to 145,000 psi.

The 1000 cu. yds. in the dome were poured in 4 concentric lifts. Truck mixers chuted the first lift directly in place. Cranes took over the other 3 pours with the top lift handled crane-to-hopper-to-buggy. Placement was completed in 1½ weeks with on-schedule deliveries of material properly processed by truck mixers of certified design, capacity, mixing speed and water control accuracy.



THIN-SHELL DOME for Albuquerque, N. Mex. civic auditorium stands on ring of columns after excavation of earth mound. Shell has both radial and circumferential reinforcement. Architects, Ferguson, Stephenson & Associates; general contractor, Lembke, Clough & King. Both are Albuquerque firms.



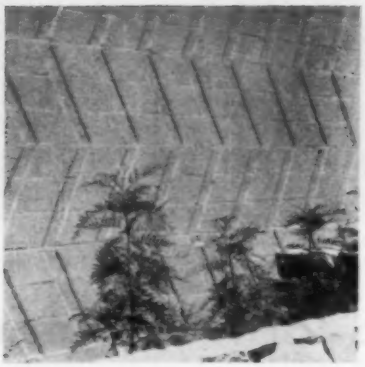
TENSION was applied to high-strength wire in ring girder by a dynamometer instead of a die. The 655 wire turns were anchored individually and each layer grouted.

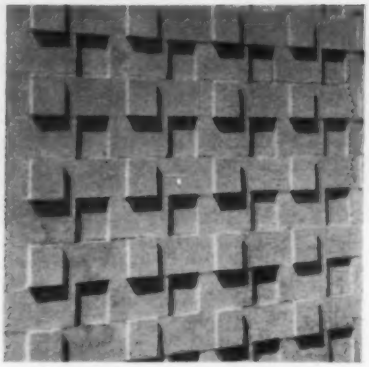
You have a right to insist on this Rating Plate. It certifies compliance with the high industry standards maintained for your protection by the Truck Mixer Manufacturers Bureau.

BLAW-KNOX CONSTRUCTION EQUIPMENT DIV.
Mattoon, Ill.
CHAIN BELT COMPANY
Milwaukee, Wis.
CHALLENGE MANUFACTURING CO.
Los Angeles, Calif.
CONCRETE TRANSPORT MIXER CO.
St. Louis, Mo.
CONSTRUCTION MACHINERY CO.
Waterloo, Iowa
THE JAEGER MACHINE COMPANY
Columbus, Ohio
THE T. L. SMITH COMPANY
Milwaukee, Wis.
WESTINGHOUSE TRANSIT MIXER DIV.
Indianapolis, Ind.
WHITEMAN MANUFACTURING CO.
Pacoima, Calif.
WILLARD CONCRETE MACHINERY CO., LTD.
Lynwood, Calif.
WORTHINGTON CORPORATION
Plainfield, N. J.

Pastel Colors, White

By GORDON W. SCHMIDT





● Color, design, workmanship—they're important in exterior and interior work with concrete masonry.

Cement, and Concrete Masonry

The soft gray color of portland cement concrete has become a shade familiar to virtually everyone in the world.

But most everyone considers the color gray to be a simple "tint" of black in a white medium; the more black present, the darker the resulting gray. A truly neutral gray can be achieved by using a black of extreme purity in a white of equal purity, but it is an objective most difficult to achieve even with the highly refined color techniques of the modern paint industry.

The concrete products industry produces almost as many different hues of gray as there are producers. Many factors influence the finished, cured color of the product: water-cement ratio, cement-aggregate ratio, the basic color of the aggregate, the color of the portland cement, the presence or absence of pozzolanic or workability agents, and even the methods of compaction and curing employed.

The resulting shade of the finished units is not of too much concern to the manufacturer who is making only natural gray units as long as the hue is moderately consistent and preferably of a light and not too "dirty" a nature. In manufacturing colored units in deep shades, the gray value inherent in the product and in the finished shade is not of too much concern either because the pigment loading is such that it overcomes and incorporates the grayness to advantage.

But with the trend of building materials to softer, lighter, and cleaner pastel tints (witness the evolution of granule-asphalt roofing towards lighter and lighter tints), this gray value, inherent in the unpigmented concrete unit, becomes more and more of vital concern when attempting to achieve clean and sparkling tints in block, cast stone, brick, concrete facing panels, split block, and other concrete facing materials.

In designing the components of a mix for the production of clean light pastels, the two most important are the cement and the aggregate or aggregates. Given a substantially clean and white base, the introduction of colored pigments for tint variations becomes relatively simple. Let us first consider the cement content.

Portland cements have an extremely wide range of color from one source to another, a fact which was discovered by manufacturers of colored units when cement shortages made necessary the use of cements from many different producing areas. Not only do portland cements vary considerably from very light (low "dirt" value, to use a color man's nomenclature) to very dark (high "dirt" or black value) but the character of the grayness or "dirt" value ranges through greenish to yellowish to brownish hues. Also, different portland cements vary in their "hiding power," the ability to form an opaque film over the aggregates and prevent the aggregate color from showing through.

The most obvious step to take in whitening the basic mix is to employ white cement. Avoiding cost considerations for the moment, white cement is necessary for pastels in the buff, yellow, and very pale color ranges. (It is worthy to note that white cements also have different inherent color characteristics depending on the source. Some white cements have a buffish or cream undertone, others have a bluish or greenish undertone which can affect to desired pale pastels required.)

Field observation indicates that most white cements have a lower "hiding power" than gray cements; and thus the aggregates tend to show through the cement paste more readily; and an unsuitable base aggregate may negate the benefit hoped for from the white cement. For instance, a concrete unit made with regular dark sand aggregate and white cement often is not sufficiently clean or white in shade to justify the use of costlier white cement. Indeed, the white cement has, in these cases, been asked to perform beyond its capabilities.

Thus to successfully achieve pale pastel tints, the aggregate must be given full consideration along with the cement to be used. Most naturally occurring sands lack the required whiteness or cleanliness (of color) to perform properly, and the manufacturer usually must look to the various "manufactured" aggregates for the white base desired. Many deposits of dolomite and calcite are being commercially worked and these aggregates are often available at competitive prices or at slight premiums, and in the proper size gradings for concrete unit application. Other specialty aggregates such as quartzite should not be overlooked when they are available in the proper color.

Of course manufactured aggregates are not always available in white form but many are sufficiently white to be very useful in the development of pastels. Naturally the lightest, whitest and cleanest should be chosen, with due regard given to cost and conformity to aggregate specifications.

Consideration must be given to the type of unit to be produced when selecting the aggregate grading. When a brick or unbroken face unit is contemplated, the aggregate grading may be coarser than when a split or hand faced unit is planned. Usually, though not always, the split or faced units are considered more marketable when the faced texture shows a fine, close-knit grain without a large proportion of large aggregate particles showing. Much high quality cast stone is manufactured using aggregate passing 100 per cent through No. 8 sieve, and some is made from still finer aggregate. However, pastel brick or block that is to have an unbroken face exposed usually is made with the normal sizing in specialty white aggregates, though sometimes a higher percentage of the finer sizes are used for a more compact and smooth finish.

Having now selected the whitest possible aggregate and white portland cement, there is one further means of obtaining a whiter material

(*Continued on Page* 34)

● Special trailer, dragged along behind truck loaded with block, takes tractor with fork-lift attachment directly to the job site.

Fork Lift Spots Block

A concrete block delivery truck, closely followed by a fork lift, speeds deliveries for United Cement Products, Co., Wichita, Kan. Partner John Miller said the company originally purchased a Sherman fork lift for handling material in the yard, but now it goes along on deliveries to provide fast and efficient service.

Operator Darrell Mason says, "This is the most simple way to handle blocks. Everyone we haul to likes it. This rig comes along fine behind the truck and is a great time saver."

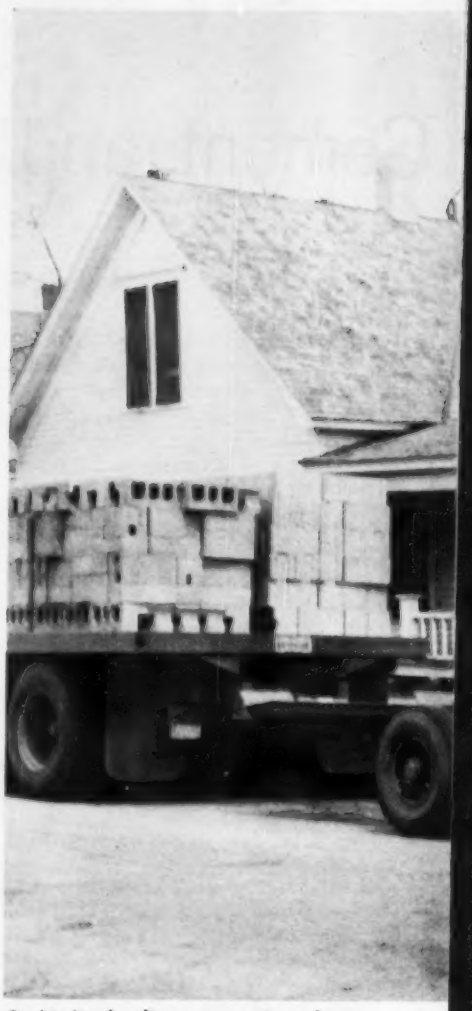
Mr. Mason says that the addition of the fork lift to the delivery rig speeds up the loading and unloading operation, but even more important, it permits spotting of the blocks around the building site where they will be used. This invariably makes a hit with the contractor, since it saves him the cost of an extra handling of the material on the job.

This equipment makes possible a saving to the contractor and at the same time saves money for the supplier by speeding the total delivery operation.

After returning from a 60-mile round trip to El Dorado, Kan., Mr. Mason said, "The truck was unloaded in 10 minutes, including the time for unloading and loading the Sherman. And we had some rough places to go over, too. We hopped the curbs with the Sherman while carrying full loads without any difficulty."

The fork lift is mounted at the rear of the tractor, placing the big power wheels almost directly under the load. For the operator, this simplifies the problem of handling fragile loads over rough spots and minimizes sinkage in soft ground.

The fork lift is made by Sherman Products, Inc., Royal Oak, Mich.



● At site, loading ramp swings down.

● Fork lift picks up block cube off the flat-bed truck.

● Block are carried around to, up,

And tractor with fork-lift attachment moves off the trailer, down the ramp under its own power.

and over the curb. Big, soft tires help.

● Then block are spotted on site to help builder and his crews.

PCA's New Structural A Huge Testing

The Portland Cement Association on Sept. 8 unveiled its new structural laboratory, a completely unique facility which may have a revolutionary effect on future structural testing laboratories. Instead of housing testing machines, the laboratory is a giant testing machine in itself, capable of exerting test forces greater than 10 million lbs.

The key to the laboratory's capabilities is the 56x120-ft. test floor. It is designed, using bridge design methods, to act as a hollow concrete box girder in the longitudinal direction and a Vierendel girder in the transverse direction. The overall depth of this girder is 12 ft. with the first floor slab joined to the basement floor slab by 8½ ft. high webs. The first floor slab is pierced by a total of 690 holes, on 3 ft. centers, by means of which loads are applied and test specimens are secured. All test loads are produced by hydraulic jacks.

This design gives the laboratory an almost limitless flexibility. Any structural element from a short girder to a full-size floor slab or roof shell can be loaded to destruction. For example, a slab can be subjected to local loads as high as 30,000 lbs. per sq. ft., and a slab the size of the entire testing floor could be subjected to several thousand lbs. per sq. ft. over its entire area.

According to Dr. Eivind Hognestad, Manager, Structural Development Section, who designed the test floor, it is capable of handling every structural test PCA engineers could imagine a future need for—plus a little more.

The building housing the test floor is 56x176 ft. in plan. A 22 ft. long bay at one end contains three stories of offices and shops. The rest of the building is one large room, 40 ft. high, with a balcony to accommodate visitors along one side at the second story level.

Other features of the building are also of considerable interest. The entire building above the first floor was assembled from precast concrete elements. The structural elements were designed according to the ultimate strength design method, and utilize high-strength alloy steel reinforcing and 5,000 psi concrete. The slender 58 ft. roof girders are simply supported on columns cantilevered from the foundation. Tilt-up wall panels were cast using newly-developed plastic and rubber form liners to obtain decorative textures and patterns. Wall panels were cast of lightweight concrete.

The entire testing and casting area inside the building is served by a 20-ton crane and is air-conditioned to 70 degrees F. and 50 per cent relative humidity. The building contains a full basement—actually composed mostly of the interior of the hollow box girder—providing ample space for storage, some casting facilities, and shops. Casting of the larger test specimens is done on the test floor. Facilities for producing concrete, casting smaller specimens, and many other technical services are available in the main PCA laboratory buildings nearby.

Initial testing being undertaken in the Structural Laboratory is aimed at improving connections between precast concrete elements, developing methods of achieving continuity between prestressed concrete units, and improving design of various types of concrete floor systems. A program has also been begun to develop needed engineering information on concrete shell roofs.

Design of all structural components of the building was by the ultimate strength method, ACI 318-56. Concrete strength was specified as a minimum of 5,000 psi at 28 days, with a maximum water content of 6½ gallons per sack and 4 to 7 per cent air content. The reinforcing used was specially rolled from alloy steel having a minimum yield point of 70,000 psi. All alloy steel bars were deformed, meeting ASTM A-305, and were #9 size. No other #9 bars were used on the job so there was no possibility of mixing steel types.

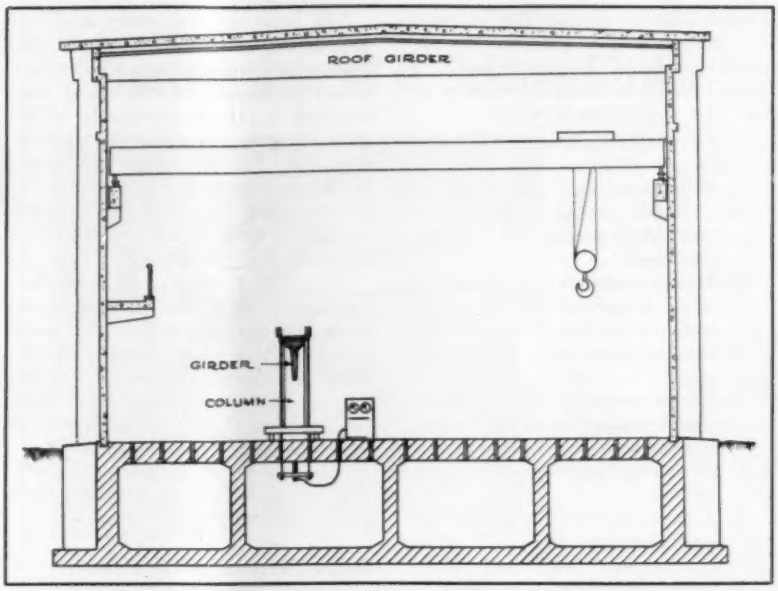
Wall panels were cast of lightweight concrete, specified to have 4,000 psi strength at 28 days. The lightweight aggregate used was "Idealite" expanded shale. Structural concrete was obtained from a ready-mix plant while the lightweight concrete was mixed on the job.

Design of Test Floor

The test floor, 56x120 ft. in plan and 12 ft. deep, is composed of a top surface 24 in. thick, a bottom surface 18 in. thick, and five webs 8½ ft. high. Interior webs are 18 in. thick and exterior webs, 24 in. It can be thought of as being composed of three I-beams and two channels running as an integral unit in the longitudinal direction.

The top slab of the floor is pierced with 2½ in. diameter holes on 3 ft. centers through which steel rods connect the structure to be tested with

Laboratory Machine



● Huge girder-like floor of PCA structural laboratory stands out in drawing. Section being tested receives load from hydraulic jacks under floor applying force to rods extending through holes to specimen.

hydraulic jacks. All test forces are produced by these jacks.

The test floor is the only one of its type in the world designed according to the principles of structural reinforced concrete. There are several smaller floors of somewhat similar appearance in Europe, but these are so heavily reinforced by bars and steel shapes as to practically amount to steel floors with a concrete surface. The structural laboratory's floor contains only 2 per cent main reinforcing steel, all of it #9 deformed alloy steel bars. There is no special reinforcing around the holes, which were formed by steel pipe of ¼-in. wall thickness. The floor was designed and functions completely as reinforced concrete, with a considerable economic advantage over other types of construction.

One of the principal innovations that made this design possible is the method of handling horizontal forces, caused either by testing or application of prestressing forces. Instead of heavy steel collars for shear transfer at the bolt holes in the floor and heavy I-beam reinforcing between holes, which has been the practice in Europe, it was decided to rely on frictional forces developed by fastening concrete buttresses to the floor by highly prestressed bolts. A coefficient of friction between such a temporary buttress and the floor of 0.5 would be adequate for the tests contemplated. Experience so far in the laboratory has been that the coefficient of friction actually developed is close to 1.0.

Each interior web in the test floor is capable of resisting safely a moment of 17,000,000 lb. ft. and the forces developed by bolting concrete buttresses and loading frames to the floor have proved more than sufficient to transmit this moment from the floor to a test structure.

Another indication of the enormous strength of the test floor is the safety factor built into it. A load of 100,000 lb. is permitted at each hole, acting up or down. The safety factor at any combination of hole loads is over two. At the service capacity load of the entire floor—about 10 million lb.—the safety factor against local yielding of reinforcing steel is 1.5 to 2.0. Safety of personnel was also a consideration in the choice of the very ductile alloy steel reinforcing; in the case of an accidental gross overload, there would be a very large and obvious distortion and cracking of the test floor before failure occurred.

The design chosen for the laboratory also proved to be exceptionally economical. The entire cost of the laboratory building, including all equipment, loading devices, instrumentation, office furniture and even landscaping, was about $1 million. For this amount, PCA got a 10 million lb. testing laboratory of almost unlimited versatility and flexibility. In comparison, this amount could be expected to buy approximately the hardware and foundation of a single 5 million lb. testing machine of conventional design, on the basis of recent installations. Such a machine would have much more limited capabilities. This economy is another reason why the new laboratory may have a revolutionary effect on the design of structural testing facilities.

Design of Precast Elements

Although the test floor is the most unusual portion of the laboratory, the rest of this building is also of considerable interest since it demonstrates advanced practice in the use of structural concrete.

Columns

A total of 18 precast columns 2 ft. square and 42 ft. 11 in. long, were used. They are arranged to form eight 22-ft. bents. The columns extend 4 ft. 8 in. into heavily reinforced sockets in the foundation, and are thereby cantilevered from the test floor acting as a gigantic raft foundation.

Main vertical reinforcing is ten #9 alloy steel bars. Horizontal ties at 12-in. centers were formed with #3 bars. A bracket for the crane girder is provided about 24 ft. above floor level, and the roof girder fits into a slot at the top of the column in much the same manner as the old mortise and tenon joint.

Roof Girders

The 58-ft. roof girders might have been designed as prestressed members, but it was decided to utilize fully some of the other and less known recent developments in rein-

forced concrete design. The ultimate strength method, as given in the appendix to the ACI code, was modified and extended in design of these girders. The modifications were:

1. The 60,000 psi maximum value for stress in reinforcement at ultimate strength was increased to 70,000 psi. This is the minimum yield strength of the alloy steel used.
2. The maximum unit shearing stress at service load of beams with stirrup reinforcement only was increased from 240 to 300 psi.
3. The provision that 60-degree inclined stirrups must be welded or otherwise rigidly attached to the longitudinal steel was waived.
4. A more conservative stirrup design procedure than that given in the code was used. Two-thirds of the total shear was considered carried by stirrups throughout the girder span, even where the shearing stress permitted on the concrete of an unreinforced web was not exceeded.
5. Face bars were provided to control cracking in the girder web.

The resultant girders depart from customary practice by their slender T-shaped cross section, by their high-strength longitudinal reinforcement, and by their inclined stirrup reinforcement.

To substantiate these departures from the ACI code, two models of 0.38 scale were made and tested before final design of the girders was established. On the basis of the tests, it was found entirely safe and satisfactory to depart from the code in this particular case. This was later confirmed by testing to destruction a full-size roof girder manufactured by the contractor.

The girders are 4 ft. deep at mid-span and 3 ft. deep at supports. The flange is 24 in. wide and averages about 7 in. deep. The web is 7 in. wide at the bottom, thickening to a maximum of 9 in. at the flanges. Tension reinforcement consists of eight #9 alloy steel bars at mid-span, arranged in four layers of two bars each. Only half of these bars extend the full length of the girder. Near each face of the web, there are three #4 longitudinal face bars, and four #5 bars are located near the top surface of the flange to accommodate erection loads. Stirrups of #5 bars at a 60 degree angle are placed at spacings ranging from 6 in. at the ends of the girders to 20 in. at mid-span.

The joint between girder and column is also of interest. Since the columns of the building are cantilevered from the foundation, the joint was designed to provide practically no resisting moment so that the girder acts as a simply supported span. However, a horizontal thrust may be transmitted through the girder from column to column so that sidesway moments are reduced.

The joint is similar to a mortise and tenon joint. The girder end, or tenon, was coated with bituminous material to prevent bond and the joint was grouted to make a close fit. Tests and experience have shown that the joint works as anticipated; it transmits thrust but not moment.

The girders were cast at the site with fabricated inserts at third-points and erected by cranes.

Other Structural Elements

Spandrel beams, 3 ft. 6 in. deep, tie the tops of the columns together. They are Z-shaped, with a short bottom leg projecting inside the building, and a 3-ft. top leg providing a roof overhang. The spandrels are reinforced with #3 and #4 mild steel bars and are connected to the columns with two ¾-in. bolts at each end.

The crane girders are rectangular in cross-section, 2 ft. deep and 16 in. wide. They are reinforced by two #10 bars, four #9 alloy steel bars, and four #5 bars. The crane rails are attached by bolts to threaded inserts in the girders. The girders can support the full live load as continuous girders due to the continuity developed by lapping and welding negative reinforcing over the supports. The crane girders were also designed with a higher safety factor than other structural elements to reflect the high safety factory customary in design of the crane itself.

A 4 ft. 8 in. wide balcony was provided along one wall of the structure for visitors. This balcony is supported by brackets attached to the columns by post-tensioning two high strength bolts.

Wall Panels

The main wall panels are approximately 20-½ ft. by 30-½ ft. by 8-in. thick and were tilted into place after being cast on the floor of the building. These panels were cast on rubber form liners which give a soft-textured exterior surface. The inside surface of the panels was given a broomed finish. Above these panels and extending to the roof are five foot high panels decorated with fluting and relief sculptures symbolizing the work done in the laboratory. To obtain entirely stable conditions, the main laboratory hall has no windows.

Wall panels were cast of light-weight concrete of 4,000 psi strength at 28 days. Reinforcing consists of #4 bars on 12-in. centers in both directions. The panels overlap the columns about 3-½ in. and are fastened by clip angles. The space between wall panels on the inside of the building was filled with concrete block.

The roof deck is composed of hollow precast concrete units spanning the 20 ft. between girders. Negative reinforcement was installed over the girders to give some continuity. Foamglass insulation and built-up roofing was applied on top of the concrete units.

Entrance

An attractive entrance is provided by a small foyer walled by two striking examples of precast sculpture. The sculpture depicts the manufacture of cement and its use in concrete to form the elements of the building.

Equipment

The laboratory is air conditioned by two separate systems. The offices and shops have a convection system in which heated or cooled water is piped to individually controlled convectors. In the main laboratory room two large conditioning units hung from the roof girders supply heated or cooled air. Steam or coolant is supplied to these units from boilers and compressors in the basement. They can also humidify and dehumidify, and maintain the air in the main room at a constant 70 degrees F. and 50 per cent relative humidity.

Lighting of the main room is by a combination of mercury vapor and incandescent bulbs to provide light very close to daylight.

Testing Equipment, Instrumentation

At present, the laboratory has hydraulic jacks capable of a combined force of about 4 million lb. Additional jacks will be obtained as they are needed in future experiments. Each jack is calibrated so that loads on a specimen can be measured by highly accurate oil pressure meters. Reactions — moments, forces and shears — are measured by electronic load cells designed and built by the laboratory's personnel. Strains are measured by mechanical and electric

strain gauges, and the readings are recorded either by automatic recorders or by hand-operated strain indicators.

Deflections of specimens can be measured either by dial gauges or by high precision leveling, accurate to .002 inch. Movements in space, such as encountered in tests on floor slabs or roof shells, are measured by first-order triangulation accurate to .01 inch.

One of the pieces of testing equipment in the laboratory is a Swiss-made set of dynamic testing jacks. Four hydraulic jacks, each capable of applying loads of up to 22,000 lbs. at a rate of 250 or 500 applications per minute, are driven by a pulsator. The unit is currently being used in repeated loading tests of prestressed bridge members. The dynamic jacks are supported by reinforced concrete frames fastened to the test floor by tensioned bolts.

Initial Projects in Laboratory

The initial investigations in the laboratory reflect the most pressing needs of practice. Considerable effort is being devoted to developing improved connections between precast structural concrete members. Full-size continuous floor systems will be tested to improve design methods for the various types of concrete floor slabs, such as flat plate, flat slab, two-way slab and slab band construction.

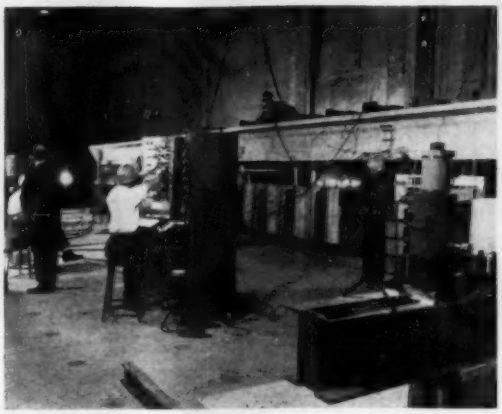
Methods of achieving continuity between prestressed members are being studied with particular reference to precast prestressed bridges, and repeated load tests of prestressed girders will be carried out. The use of high-strength reinforcement without prestressing will be further investigated with the eventual aim of contributing to the development of an improved and more economical concrete reinforcement.

Further contributions are being made to ultimate strength design methods, and the inelastic behavior of statically indeterminate structures is under investigation. Through improved design methods such studies are expected to lead to better utilization of structural concrete.

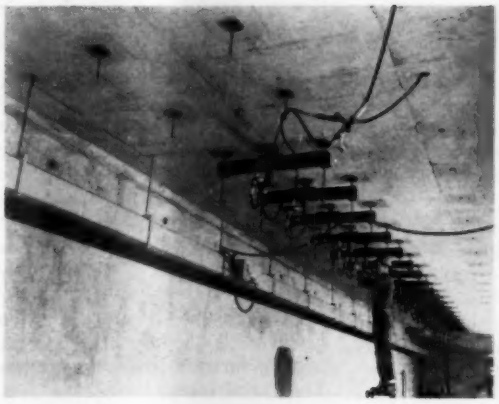
Emphasis is being placed on a long-range program toward getting needed engineering information on the design of shell roofs. This program has already been initiated and is emphasized because no other laboratory in the U.S. is well equipped to test large space structures.

The Laboratory is supervised by Dr. Eivind Hognestad under the overall direction of Douglas McHenry, Director of Development. It is now staffed by ten engineers and ten technicians, and draws upon the extensive services which are generally available in the Research and Development Division for assistance in instrumentation, maintenance, data processing, etc.

Destruction of a Bridge Girder



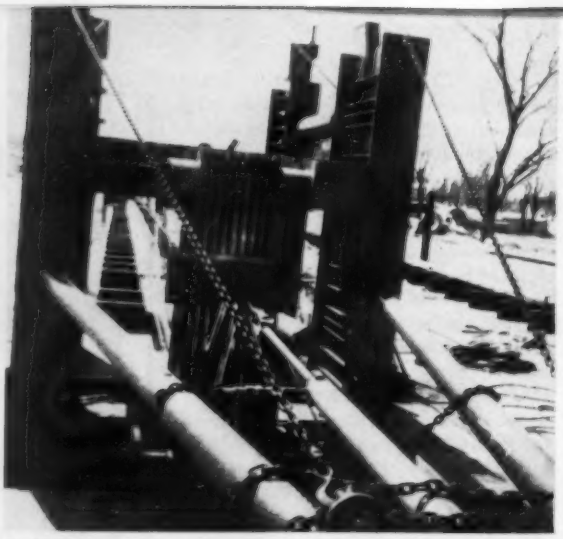
● On press day, Sept. 8, the PCA demonstrated their new structural laboratory by loading a half-scale model AASHO standard highway bridge girder to destruction. Purpose of the test was to obtain data on the continuity between prestressed members.



● Jacks, on 3-ft. centers on the underside of floor below beam, apply loads to the girder, which, in the test, was 66 ft. long and 25½ in. deep. A deck slab, 3 in. thick and 39 in. wide, was cast over each span. Weights hanging from the beam duplicate deal load.

● Beam deflected approximately 6 in. before collapse, which came at a live load of 87,500 lbs. Design live load for each span was 12,385 lbs. Thus, the girder carried a load 7½ times the design live load before collapse.

Elk River's Prestressing Facilities



● Single strand jack supplies tension to draped strand.

By Gordon Eull

Three acres of land previously covered with a mountain of stacked concrete pipe, awaiting shipment, recently became three acres of productive prestressing facilities at the Elk River Concrete Products Co., 30 miles north of Minneapolis. The company recently started producing prestressed bridge beams along with its concrete pipe. Both operations are now being carried out on the same 10-acre factory site.

Realizing the advantages of having the prestressing beds on factory grounds, the company made room by analyzing the space situation, deciding on a location for the beds, and then moving the surplus concrete pipe to other areas of the factory grounds and restacking it more compactly.

Although the prestressing is largely a separate operation, its proximity to the pipe production offers many advantages. The same railroad spur is used for incoming shipments of steel and cement. Pipe production equipment, such as hoisting machines and trucks, is easily accessible so that one operation can borrow from the other, if either should encounter trouble. The technical knowledge and experience gained from 40 years in pipe production is readily available as needed for the prestressing production.

Perhaps the greatest advantage, however, is the use of the concrete mixing facilities by both operations. The prestressing beds are located only 400 ft. from the mixer.

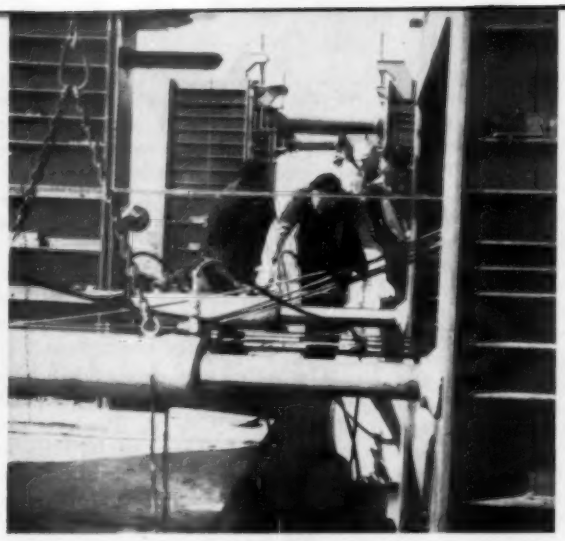
There are two prestressing beds — 300 ft. and 330 ft. long. The plant and bed design was started by C. C. Zollman and Associates, Newtown Square, Pennsylvania, in July of last year. Ground was broken in the middle of August, and the beds were in production by October 1.

The universal type beds can be used for most any type of prestressed work. At the present time, type II and III AASHO standard beams are being produced for the Minnesota Highway Department, which is working on the interstate highway program.

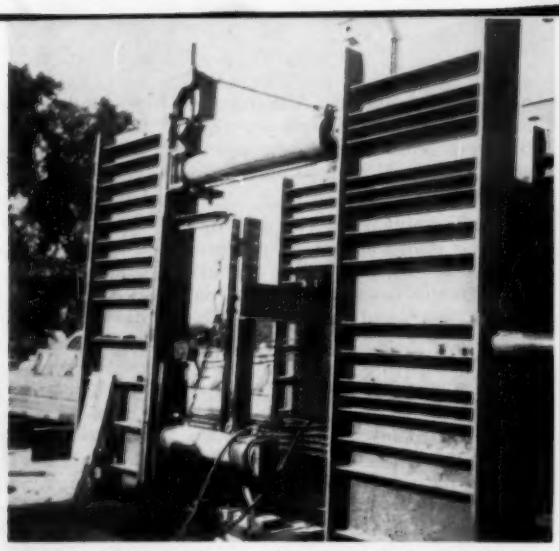
Each of the two parallel beds was designed for 1,000,000 lbs. thrust with a center of gravity 3 ft. above the bed. Mass concrete boat type abutments are used to counteract this thrust. Approximately 400 yds. of

● Travelift pulls strand into position at crossbar.

● Among tasks, fork truck carries concrete to beds.



● 150-ton jack mass tensions flat strand.



● Struts hold carriage in place so jack can be released.

concrete and 10 tons of reinforced steel were used for each end abutment.

Form-Crete forms, made in Lakeland, Fla., are used. These are raised on 12-in. steel I beams above the beds to allow access to the hold down anchors. When the forms are removed, they are transported by the Hyster Karry Krane to the side lines, out of the way.

Hold down anchors are placed so that draping of the strand may be done at any point along the length of the beds. Therefore, it is possible to produce beams of any desired length and with any design of draped strand. The anchors are good for 30,000 lbs. of uplift at any point.

Jacking equipment, made by Rogers Hydraulic Co. of Hopkins, Minn., consists of two 150-ton jacks to stretch the bottom strands all together, and a single strand jack to stress draped strand individually. Albert Bailey, company engineer, pointed out that this jacking system works out very satisfactorily. The main advantage is that individual or group tensioning can be used, depending on the situation.

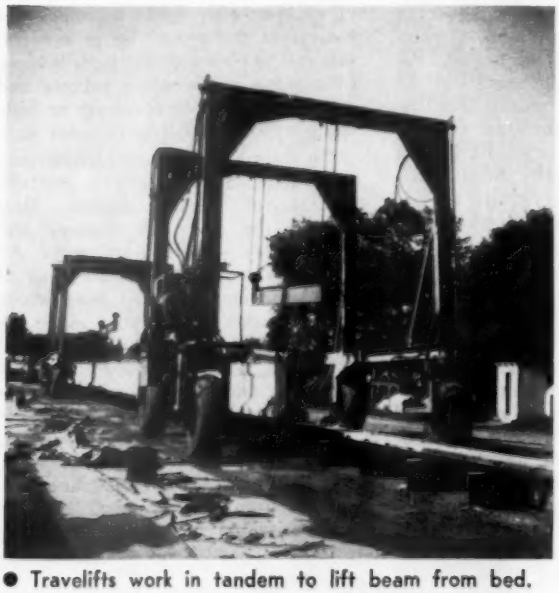
The two hydraulic jacks are used for stressing the bottom strands. These are more easily and quickly stressed all at once, but if a strand should break and need retensioning, the single strand jack can be used.

After the strand have been tensioned, four screw jacks (adjustable struts) are put in place on the top and bottom between the end uprights and the movable carriage uprights. These jacks are on hinges so that, when not in use, they can easily be swung inward, out of the way. After the screw jacks are in place, the hydraulic jacks are released.

Concrete is carried from the mixer to beds in a one-yard bucket. The bucket is scooted to the pouring site by either a Gerlinger Fork Truck or a Hyster Karry Krane, whichever is available.

Two Marine Travelifts, each with a capacity of 12 tons, do a good job of handling the finished beams. An interesting thing about the Marine Travelifts, suggested by their name, is that there were originally made, and are widely used, for lifting large yachts into and out of the water.

On the yard at Elk River Concrete Products Co., both Travelifts are kept



● Travelifts work in tandem to lift beam from bed.

● Heavy yard work: Travelifts straddle truck with beam.

busy. For transporting the smaller beams, one Travelift is sufficient; but the larger beams require the use of both fourlegged units working in tandem.

Each Travelift is controlled by one man who stands on a little platform over one of the wheels and operates the hydraulic motor that moves the running gear and the hoists. The hoists, pulleys descending from the crossbars on each end of a Travelift, support a steel beam with a hook on its underneath side. The two hooks, one on each Travelift, lift the members off the bed. The beams are then taken to the side and layed down in groups of three or four rows. Just enough room is left between these groups to allow the Travelift to pass between them. When the time comes to load the beams on trucks, the Travelift can pick up any beam, not having to do any unnecessary moving of beams to get at a specified one.

Steam is supplied to the pipe and prestressing operations by two 60-H.P. Kewanee boilers located next to the mixer. An underground utility trench, which runs to the beds, carries the steam for curing. The trench also contains electrical wiring and serves as a drainage trench. Steam outlets are located every 60 ft. along the trench. These outlets are connected to a perforated pipe that runs underneath the forms to distribute the steam evenly along the full length of the bed. During steaming, the beams are covered with neoprene blankets. 4,000 psi concrete can be obtained by this method in approximately 18 hrs., using 8 sacks of cement per cu. yd. of concrete with a 2-in. slump.

Testing and inspection, both during the prestressing process and of the finished beams, is done by the Minnesota Highway Department.

The addition of prestressing beds to the already established pipe plant at Elk River Concrete Products Co. assures the company of facilities to meet the continuing demand for concrete products in Minnesota highway work.

Pastel Colors, White Cement, and Concrete Masonry

(*article begins page* 24)

for its own sake or a whiter base for light pastels: that is to employ a white pigment. While there are many types of white pigments available, we shall discuss only pure titanium dioxide, Rutile or Anatase, the class having the highest whitening power.

In 1957 a British producer of titanium dioxide issued the results of a study involving the efficacy of this pigment in concrete. This investigation was seemingly most thorough and was performed under rigidly controlled conditions. The most significant conclusion (from the cost standpoint) is that whitening a gray concrete mix with titanium dioxide is less economical than the use of white cement in the mix. (The investigation did not cover the effects of adding the white pigment to a mix formulation already designed for maximum whiteness. This of course is an area for experimentation and trial, but it is likely that the addition of titanium dioxide would have beneficial effects not only in increased whiteness or brightness but also in increased "hiding power" of the cement paste.)

Of assistance to creating as white a product as possible are some of the proprietory types of plasticizers, which tend to give a lighter color to all mixes. Also, the use of a higher water-cement ratio tends to lighten the color of the basic mix, a step which has definite limitations with equipment designed to use a no-slump mix, but which is possible in certain types of casting work. A good grade of white hydrated mason's lime has been used on occasion to lighten a product, and when used in quantities up to 15 or 20 per cent of the portland cement content seems to have no adverse effect on the quality of the units.

By itself, a white product would have a somewhat limited market whether in brick, block, manufactured stone, split block, or facing units. And, primarily due to the use of white cement, such material would be more expensive than the equivalent materials made with regular portland gray cement. Now let us see what we can do about pastel colors effecting all possible economies and still achieving hues that may be considered in the pastel category.

Fortunately not all soft pastel shades require such a basically white mix; indeed some pastels can even benefit from the gray nature of common portland cement. Generally, the subdued bieges, sandstones, and so-called "earth-tone" pastels can be better produced with gray cement, whereas the clean ivories, buffs, and creams, as well as the bright pale pink and rose tones, require the influence of white cement.

This leads to speculation about the prospects of blending gray cement with white cement in the interests of economy. This may be done with significant savings in raw material cost but must be arrived at by trial with careful consideration given to the balance between the possibly-lowered saleability of the less-bright pastel and the savings involved. Because of the apparently lower "hiding power" of some of the white-cement types, there may be many cases where it is not economically desirable in the mix at all, since a small amount of the white will be "swamped", colorwise, by the gray.

The concentrations of pigment used in pastel work are surprisingly low, a fact that helps to mitigate the higher cost of white cement. Buffs, creams and ivory tints, for example, when used in an all-white aggregate-cement system seldom requires more than a single pound of synthetic iron oxide yellow pigment per sack of cement, and frequently the requirement is as low as two ounces per sack depending upon the depth of pastel desired. In fact, if the regular four or five pound loading of a pure yellow oxide were used in an all white system, the resulting color, while it may be very clean and bright, would cease to be a pastel at all and probably would be considered too bright and gawdy for good saleability. The object of the high loading in regular mixes using yellows and tans is as much to cover up or hide the gray color as it is to color it.

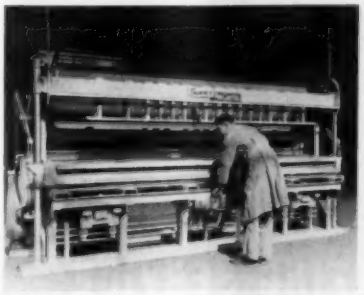
The market for pastel hued concrete units is essentially a specialty market, or custom market. Most usually the units are custom produced for a specific application. An exception would be in the case of high class manufactured stone where the units can generally be made for stock to fill a continuing demand that has been developed. Custom work includes institutional interiors and exteriors, and commercial work. All of these custom applications result from architectural inspiration, and the concrete products plant making a serious bid for such architectural business must be prepared to make experimental specimens for pre-selection.

A Look at What's New in

EQUIPMENT and MATERIALS

Besser Has Precaster For Special Units

Besser Company, Alpena, Mich., now has available a semi-automatic PreCaster Machine for making lintels and similar concrete units up to 12 feet in length or multiples thereof. Previously, these special structural units were made by slow hand methods with little control of the unit texture. The Besser PreCaster is said



to enable plant operators to make these pre-cast units on a fast production basis with each matching the texture and color of standard Vibrapac block. The vibration under pressure used in the new PreCaster simulates to an accurate degree the unit density and face texture of the lintels, as achieved in making block on a Vibrapac with the same mix design.

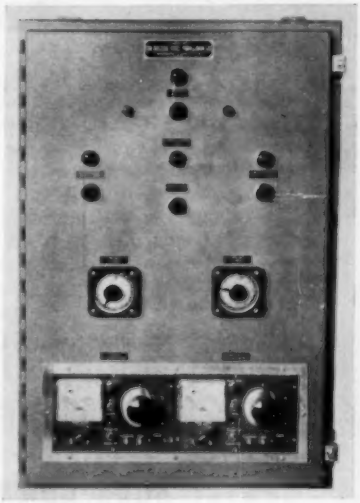
The PreCaster is flexible in scope enabling it to produce any concrete unit that will strip through a straight mold box. Typical units are conventional lintels, retaining wall cribbing, floor and roof slabs, rail fence posts, tapered end to end, highway guard rail posts, parking lot markers and curbing. Any aggregate can be used and mold boxes for various widths and special shapes can be furnished. The mold boxes are easily and quickly replaced. The Besser PreCaster is said to require little maintenance with all moving parts easily accessible for inspection and adjustment.

Besser Company claims the PreCaster opens up new avenues of profit for all concrete products plants and blockmakers. Not only does it elevate so called "nuisance items" to a profitable level, but the units are also greatly improved in texture, strength and appearance. Literature on the PreCaster may be obtained from Besser Company, Alpena, Mich.

Enter L39 on Inquiry Card

Offer Precise Control Of Concrete For Block

Concrete for block making can now be controlled automatically and precisely from bin to block machine without human error according to the manufacturers of the "Helco Auto Mix." This device, made by Heltzel Steel Form & Iron Co., Warren, Ohio, was designed to operate in conjunction with automatic weigh-



ing equipment to complete the automation of the concrete supply process. The operator now required to

For more information use postcard facing page 48.

control the mixing cycle is not needed with the "Helco Auto Mix."

As the manufacturer describes the operation of the device, a "batch complete" signal from the automatic weighing equipment initiates the "Helco Auto-Mix" which then discharges the aggregate from the weigh hopper into the mixer. The "pre-wet" water is added and precisely controlled by a moisture meter. Having added the proper amount of water, the water valve closes and timer then controls the mixing time of the pre-mix.

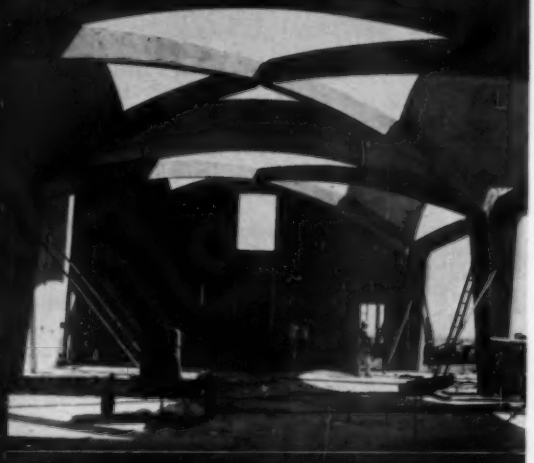
When the pre-mixing time has elapsed, the "Helco Auto-Mix" discharges the cement from the weigh hopper into the mixer. At this point when the cement has discharged and the weigh hopper is empty, the automatic weighing equipment, which is normally set to recycle, will begin to weigh a new batch. A second moisture meter now adds the "final water" to control the moisture in the "final mix." At the proper moisture content, the water valve closes and a final-mix timer takes over and controls the final-mix time. When this time has expired, the mix is ready to be discharged to the surge hopper above the block machine.

The operations which follow require the mixer to have an air operated discharge gate and clutch. Discharge of the mixer depends upon the material level of the surge hopper. A level indicator first checks the hopper to determine whether there is space for a new batch. A positive signal will allow the "Helco Auto-Mix" to discharge the mixer. A negative signal prevents discharge but allows the mixer to continue. Another timer then takes over and allows the mixer to run for an additional minute. During this interval, the mixer will discharge if the level indicator signals it to do so; however, after this interval, the mixer clutch will be disengaged until the mixer is allowed to discharge. After discharge, the "Helco Auto-Mix" returns to its starting position and provided a batch is ready in the weigh hopper, will begin a new cycle. A limit switch interlock has been provided to prevent starting a new cycle unless the mixer discharge door is closed.

For more complete information write Heltzel Steel Form & Iron Co., 8600 Thomas Road, Warren, Ohio.

Enter L40 on Inquiry Card

The forms of the future are in Prestressed Concrete...



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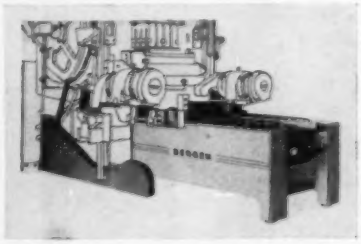
Bergen Has Automatic Front Pallet Feeder

A front pallet feeder said to assure smooth block handling at high machine speeds is being offered by the Bergen Machine & Tool Co., Inc., Nutley, N.J. The new feeder features Bergen's Harmonic Drive, is fully automatic in operation and needs no auxiliary power unit being driven by the block machine mechanism. According to the manufacturer the



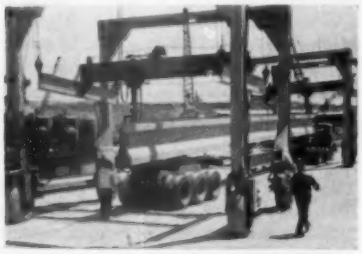
feeder is easily installed and permits modernization of many existing block machines. If desired the device can be equipped with pallet scraper and pallet oiler.

Bergen Machine & Tool Co., Inc., 189 Franklin Ave., Nutley 10, N.J. will supply full details on request.

Enter L41 on Inquiry Card

New Hydraulic Lift For Prestress Plants

A new mobile hydraulic lift said to be especially adapted for use in prestressing plants has been developed by Travelift & Engineering, Inc., Sturgeon Bay, Wis. Lifting, propulsion and steering are all done



hydraulically and all movements are controlled from the operator's platform by one man. The new device is an adaptation of a lift designed originally to handle boats. The first application to the prestressed concrete industry was to expedite clearing of casting beds, transporting beams and girders to storage or for loading. The manufacturer reports that a time study of the use of a Travelift in a casting yard showed that six trucks were loaded in 17 minutes. In handling girders two units are used in tandem, the hydraulic drive system so cushioning the movement as to eliminate any sway of the girders. Hydraulically operated trolleys provide for lateral movement of the load.

According to the manufacturer Travelift is now being used in prestressing plants to pull strands, set caging, handle and set forms, and place concrete in the forms. The equipment is available now in capacities of seven, twelve and twenty-five tons. A larger model will be available soon. For complete specifications write Travelift & Engineering, Inc., Sturgeon Bay, Wis.

Enter L42 on Inquiry Card

New Booklet to Help Ready-Mix Producers

"Standard Calcium Chloride Solution in Ready-Mixed Concrete" is the title of a new pamphlet designed especially for ready-mixed concrete producers in their preparation and use of calcium chloride standard solution. The pamphlet tells how to prepare the standard solution, the amount to use per batch of concrete, and provides data on automatic dispensers. A chart lists recommended gallons of standard solution, depending on yards of concrete in batch and whether 1 or 2 percent calcium chloride is to be added by weight of cement. The pamphlet takes into account the use of Type 1 or Type 2 calcium chloride when preparing the standard solution and gives adequate data for preparing large or small quantities. Copies are available on request to the Calcium Chloride Institute, 909 Ring Bldg., Washington 6, D.C.

Enter L43 on Inquiry Card

Leap Has Prestressed Concrete Design Book

Leap Concrete, Inc., Lakeland, Fla. has just published 72-page Prestressed Concrete Design Handbook, as Volume 9 in a design series. This volume covers 5-ft. wide by 18-in. deep double tee roof members. The data included covers safe superimposed loads in the span range of 20-ft. through 61-ft. using 7/16 diameter strand with both parallel and depressed designs. A data sheet for each strand pattern gives spans, load-

FAST – ECONOMICAL – VERSATILE

KENT Block-maker

Makes blocks ECONOMICALLY

Makes chimney blocks ECONOMICALLY

Makes concrete bricks ECONOMICALLY

Perhaps yours is one of the many plants for which this semi-automatic versatile machine is ideally adapted.

It is strictly a one man machine. Place the pallet—push the button—swing out and remove the block.

It is capable of up to 60 cycles per minute, producing 360 standard blocks or the equivalent in one hour.

Equal delivery of aggregate to the mold box is assured by agitation.

Uniform density is obtained by vigorous vibration.

An efficient press head assures smooth topped blocks of uniform height. Low first cost and moderate operating costs provide a liberal margin of profit.

Investigate the profit possibility of replacing older equipment with this efficient machine. Write for information.

Or, if you need a larger block machine or other equipment it is available including batch and continuous mixers, car unloaders, aggregate feeders, etc.

The **KENT MACHINE CO.**

SUBSIDIARY OF THE LAMSON & SESSIONS CO.

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CONCRETE PRODUCTS MACHINERY SINCE 1925

Canadian Distributor: Wettlaufer Equipment, Ltd., 49 Merton St., Toronto 12, Ontario

ings, prestressing force, initial prestressing force, principal concrete fiber stresses, camber, deflection, release strength of concrete and 28-day concrete strength. The handbook contains complete information on 116 different combinations which the authors say will enable an architect or engineer to specify in a matter of minutes, exactly which double tee to use under any given condition. There is also included a section on basic design of prestressed concrete and a table of loadings for nine other prestressed structural members such as channel and keystone joist. The Handbook may be obtained from Leap Concrete, Inc., P.O. Box 1053, Lakeland, Fla. at a price of $2.00.

Enter L44 on Inquiry Card

Hydraulic Jack For Prestressing Plants

G. T. Bynum Co., Tulsa, Okla., is introducing a line of hydraulic jacks specially designed for the prestressed concrete industry. The complete line with units ranging from 10 to 400 tons capacity, has been field tested for more than a year. The elimination of flanges on the larger sizes, simplifies both locating and mounting. The Bynum company has had twenty

years experience in oil field hydraulics both in America and in foreign countries.

Enter L45 on Inquiry Card

Develops Pocket Size Electric Trouble Tracer

Bergen Machine & Tool Co., Inc., Nutley, N.J., has developed a pocket-size electric trouble-shooter described as a combination volt-ohm-mil-ammeter with which the cause of most electrical failures may be traced quickly. The instrument is light and compact and according to the manufacturer takes the guesswork out of locating broken wires, poor contacts, loose connections or low voltages. An easy-to-read instruction manual accompanies the instrument. More detailed information may be obtained by writing Bergen Machine & Tool Co., Inc., 189 Franklin Ave., Nutley 10, N.J.

Enter L46 on Inquiry Card

New Device Converts Motion Into Signal

The Bin-Dicator Co., Detroit, Mich. announces that a new low-cost motion indicator is available, designed primarily for the process industries but applicable in other operations where positive indication of motion or lack of motion is required. This new protective device, called Roto-Guard, is a means of converting motion of various types into a signal. This signal impulse may be used to energize an alarm system to warn operating personnel or to operate control switches automatically. The cost of adding this protection, the manufacturer says, is recovered in a short time through the prevention of costly damage to materials or machinery, which often results from stoppages of machines or parts of systems located in remote or obscure places.

Roto-Guard is connected to any slow turning shaft and as long as the

PREVENT CONCRETE "BUILD UP" with AMAZING, NEW KLEEN-MIX

Forrer's remarkable, new KLEEN-MIX is an easy, inexpensive way to prevent concrete "build up" on mixers, hoppers, conveyors, skip hoists, etc. Spray or brush on KLEEN-MIX the night before, and at the end of the day, only a putty knife and brush are needed to whisk off hardened concrete.

Note these advantages!

- Cuts clean-up time in half
- Requires only brush and scraper
- No chisel or air hammer needed
- Increased equipment life
- Easy to apply

Order a trial supply today!

FORRER'S 2225 No. Humboldt Ave., Milwaukee 12, Wis.

FORRER'S
STAR PRODUCTS FOR MASONRY

★ X-L 100
Powdered concrete plasticizer

★ Hydro-check®
The perfect fast-setting, patching cement

★ For-Air
Concentrated air entraining agent

★ Integral Waterproofing Paste
Cuts concrete water absorption

★ Economy Release Oil
A parting solution that cuts clean-up time by 50%

National Sales Representatives for:
RAMSEY PRODUCTS

★ A.B.C. Automatic Batching Controls.
Completely automatic weighing, mixing and handling

★ Sand Moisture Probe.
Measures sand moisture content

★ Moisture Meter.
Regulates water in concrete mix automatically

★ Calcium Chloride Dispenser
Automatic batching control.

Forrer's
PRODUCTS FOR MASONRY
SINCE 1926

driven shaft rotates normally the Roto-Guard, by means of a circulating pump and pressure-actuated switch, indicates normal operation. Should the rotation of the driven shaft slow below operating level or stop entirely, the resulting drop in pressure would set off the alarm signal to warn the operator. The Roto-Guard can easily be wired into an interlock system. In this way the stoppage of one component in the chain of process equipment automatically will stop the other components to prevent damage. In the case of materials handling systems, such as conveyors, elevators, or feeders the manufacturer points out that an interlock of this nature saves both time and material by alerting control personnel to switch to emergency channels before jamming becomes critical.

The Roto-Guard is designed for operation at speeds of 10 to 150 rpm and is adjustable within that range. If the driven shaft operates at higher speeds a simple gear or pulley reduction may be incorporated. It is connected to the driven shaft by direct coupling, gear or "V" belt.

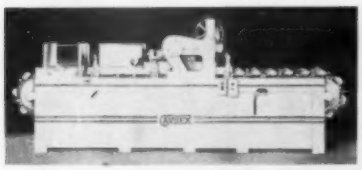
Four-page illustrated catalog will be sent on request to Bin-Dicator Co., 13946 Kercheval Ave., Detroit 15, Mich.

Enter L47 on Inquiry Card

New Machine Molds Four Types of Block

A new "Cavitex" block machine said to be capable of making four types of concrete masonry units is being introduced by W. E. Dunn Mfg. Co., Holland, Mich. Adrian G. Buys, Cavitex sales director of the Dunn company believes the new machine will open up expanded sales opportunities for manufacturers of concrete products. A company bulletin says the new machine can produce Romancrete, Splitcrete, Cavitex and Terracrete masonry units.

Mr. Buys sees evidence that the block industry is headed for an era of competitive activity which might lead to price cutting and consequent



sacrifice of profits. He suggests that a good way to head off such a situation is diversification of line with specialties to take up the slack in block production.

"The growth of the specialty business during the past decade has been tremendous," Mr. Buys said, "and nobody is in a more logical position to undertake this specialty production than the block manufacturer. He has the building, the personnel, much of the required equipment, and, of equal importance, the contacts with the building industry." Mr. Buys also points out that with the new Cavitex machine, more activities can be concentrated in one compact plant with one basic machine and one comprehensive franchise.

Full details and specifications of the new machine may be had by writing W. E. Dunn Mfg. Co., Holland, Mich.

Enter L48 on Inquiry Card

Low Cost Bulk Storage Silos Are Now Offered

Engineered Equipment, Inc. announces a new low-cost "Corgal" line of bulk storage silos, designed to

UNIFORM PRODUCTION

FOR BLOCK AND READY MIX PLANTS

HYDROBOT

FOR UNIFORM BLOCK PRODUCTION

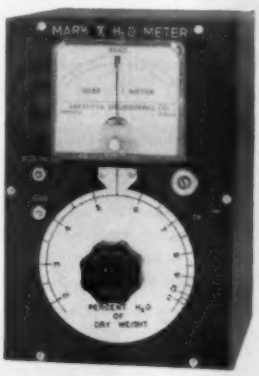
HYDROBOT is an electronic instrument to automatically shut off the mix water when the mix is the proper consistency.

ACCURATE — Will duplicate batches with far greater precision than human judgement.

SIMPLE — Installed by your own maintenance man. Single dial adjustment. Allows easy setting for any moisture requirement.

$278.00 Delivered Less 2% 10 Days

MARK X, H_2O METER – FOR UNIFORM READY MIX PRODUCTION



The MARK X is an electronic instrument to determine the moisture in fine aggregates, such as sand, screenings, etc.

ENGINEERED — to be the most reliable and accurate instrument produced for the purpose at any price.

POPULAR — Most widely used Moisture Meter ever marketed — THE STANDARD OF THE READY MIX INDUSTRY.

Automatic MEMORY — The batcher can see at a glance what his previous moisture has been and whether or not it has changed since the last batch.

$178.00 Delivered Less 2%, 10 DAYS

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DESIGNERS • MANUFACTURERS • CONSULTANTS

P. O. BOX 1329 SARASOTA, FLA.

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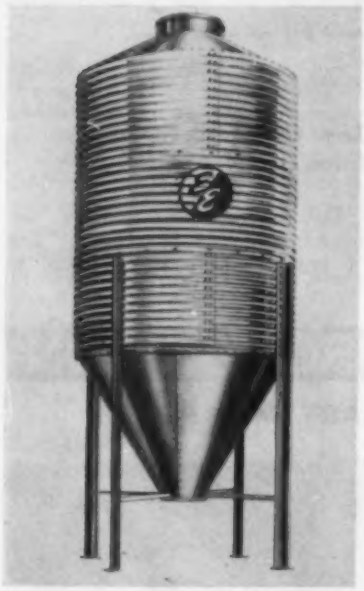
effect more economical and efficient handling of bulk cement and free-flowing dry granular materials. The new E/E "Corgal" silos are con-



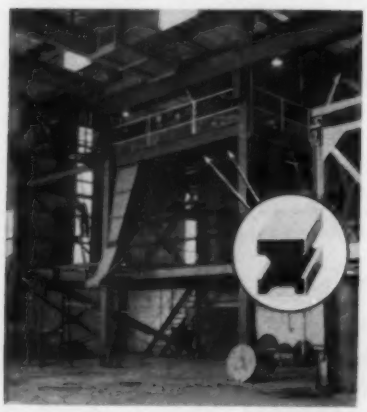
structed of prefabricated corrugated galvanized steel. Vertical seams are double bolted to assure maximum strength and weather-tight protection. Steep 60 degree discharge cone insures fast, easy flow of material.

"Corgal" silos are available in 6, 9 and 12 ft. diameters with capacities of 29 to 413 barrels. For details and prices write Engineered Equipment, Inc., Waterloo, Iowa.

Enter L49 on Inquiry Card

Claim Vibration And Sound Problem Solved

Installation of Rexon vibration mounts made by the Hamilton Kent



Manufacturing Co., Kent, Ohio, solved a vibration and sound problem in a Saginaw, Mich. concrete products plant according to the manufacturer of the device. The vibration dampeners were installed between the bases and the main beams supporting two 50 cu. ft. concrete mixers, as shown in the accompanying illustration.

Enter L50 on Inquiry Card

Bailey Meter Has Specification Booklet

Bailey Meter Co., Cleveland, O., announces publication of a 16-page product specification booklet listed as E12-5. The booklet contains details of newly developed plug-in components for the Bailey Recorder. Twelve types of receivers, controllers, retransmitters and direct measuring devices from which the recorder may be custom-built, are described. A sealed, automatic, one-year inking system is also illustrated and described. Specification E12-5 is available on request to Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio.

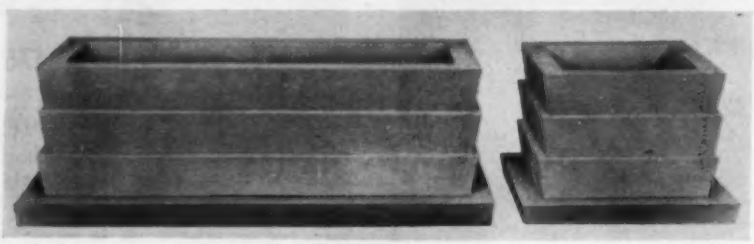
Enter L51 on Inquiry Card

Colorcrete Industries Has New Garden Units

Three new Gardencrete units have been introduced by Colorcrete Industries, Inc., Holland, Mich., to add beauty to lawns and gardens. The Contempora flower box and vase are companion pieces to be used as permanent planters for shrubs and evergreens or for seasonal flowers. They are styled for today's home trends with graceful lines and attractive colors. The Contempora cap stone forms a simple but distinctive finish to any post erected of masonry.

Two or more sections of the flower box and vase are laid on a base to form an assembly. Sections are 3½ in. high. Flower box sections are 36 in. wide by 15 in. deep; vase sections are 15 in. square. The downward taper emphasizes the effect of separate planes which is heightened when each section is Colorglazed in a different color. Three sizes of cap stones are available: 17½, 13, and 9 in. square. Each is 1½ in. thick, excluding the upward tapers. Molds for making these Contempora units are manufactured and sold by Colorcrete Industries, Inc., 332 Ottawa Ave., Holland, Mich.

Enter L52 on Inquiry Card



Syntron Publishes Condensed Catalog

Syntron Company, Homer City, Pa., has published a new condensed catalog of its vibratory bulk materials handling equipment. The 64-page catalog pictures and describes vibrators, packers and jolters, car rappers, hopper level switches, flow control valves, electro-magnetic feeders, conveyors, and elevators. The book also gives specifications for screens, test sieve shakers, weigh-feed equipment, and parts feeders. Many power tools and pieces of concrete finishing equipment are included.

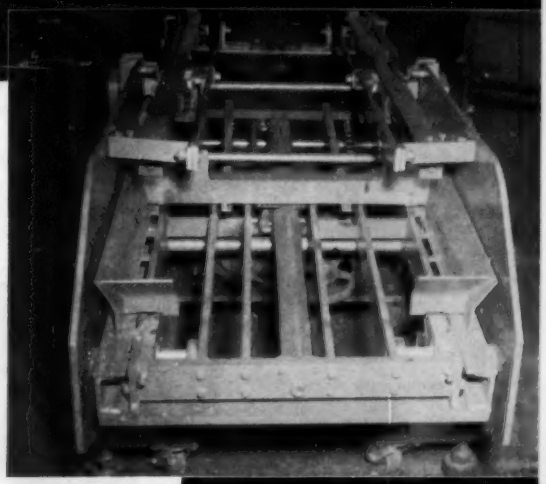
To obtain a free copy of this Syntron Catalog No. 586, write to Syntron Company, 324 Lexington Ave., Homer City, Pa.

Enter L53 on Inquiry Card

New Concrete Admix Speeds Job Progress

Sika-Set, a new liquid chemical additive for all concrete and mortar mixes, has been introduced to the contracting, maintenance and ready-mix industries by Building Products Division of Sika Chemical Corporation, Passaic, N.J. The manufacturer says that the new admix increases

Every Imperial Hydraulic Block Machine Now Being Shipped Has:



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   — maximum efficiency at all times.
2. ***5-GALLON ACCUMULATOR***
   — added power for real peppy operation.
3. ***FRONT PLATE (PALLET) FEEDER — See Illustration***
   — a plate scraper that really scrapes; not merely a wiper or brush.
   — a plate oiler that serves up clean plate for uniform, quality production.
4. ***SEPARATE DUST-PROOF ELECTRICAL CONTROL CABINET***
   — sealed for long trouble-free life.
5. ***24-CYCLE INDICATOR LIGHTS***
   — provides instantaneous visual check on electrical sequences.
6. ***THERMOSTATICALLY CONTROLLED HEAT EXCHANGER***
   — maintains uniform temperature of oil for all weather conditions throughout year.
7. ***TWO-PIECE FEED DRAWER***
   — saves time and money.

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Manufacturers of the Royal Line of Concrete Products Plant Equipment

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CONVEYORS AND ELEVATORS

Engineered and built to your Special Requirements

MECO Conveyors and Elevators embody all the features and advantages gained by an extensive amount of experience in design and manufacturing over a period of one half century. Numerous installations made in the ceramic, chemical, coal, sand and gravel and other industries where handling of bulk material is required, are giving the utmost in satisfaction.

Available as complete units with framing, or in component form for purchaser assembly.

Write *now* for Bulletins No. 576 and No. 577.

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AGRASEAL

BRUSH COAT

ONE COAT COVERS

Seals and beautifies concrete all in one application. Better than several coats of ordinary type cement paint! Surfaces sealed with AGRASEAL repel water, oil, alkali, steam, sun, smoke, heat, cold, dampness and frost. Seals the tiniest air holes! Mixes easily with water. Applied easily with scrub brush or short bristle paint brush. Comes in white, cream, grey, green, brick red, light buff, sunny yellow, mint green, peach and coral pink.

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228 North La Salle Street
Chicago 1, Illinois

durability and water resistance of concrete and mortar. It accelerates hardening action to speed on-the-job progress. Forms may be stripped sooner and re-used more frequently; early floor finishing reduces or eliminates overtime finishing costs. The optimum quantity of air entrained by Sika-Set improves placeability and increases frost resistance.

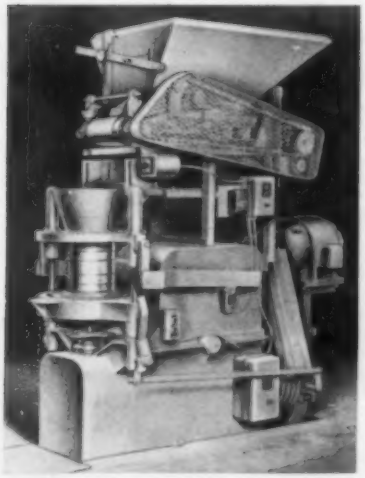
Illustrated literature details product applications and advantages and offers an easy-to-follow proportioning chart of Sika-Set to water, to sand, to cement for year-round use.

Complete information may be obtained by writing Sika Chemical Corp., Building Products Sales Div., 35 Gregory Ave., Passaic, N.J.

Enter L54 on Inquiry Card

Dunn Has New Automatic Machine For Drain Tile

Two-way packing for high production at low cost is featured in announcements of a new Dunn automatic drain tile machine offered by W. E. Dunn Mfg. Co., Holland, Mich. Automatic feeding, the manufacturer says, assures an even and



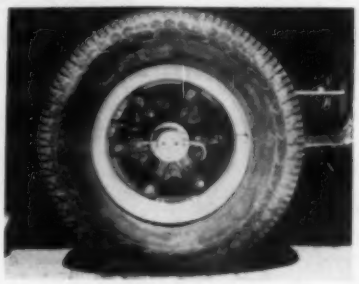
constant flow of material regardless of the type of aggregate used. Production rate on the new Dunn machine varies from seven tile per minute for smaller sizes to five tile per minute on larger sizes, ranging from three inches through 4, 5, 6, 8, 10, 12, 14 and 16-in. inside diameter, all 12-in. long.

The Dunn automatic machine occupies only 24 sq. ft. of floor space, has its own self-contained drive and is ready to operate when connected to the power source. Complete details are available by writing to W. E. Dunn Mfg. Co., 316 W. 24th. St., Holland, Mich.

Enter L55 on Inquiry Card

New Device Warns Of Unsafe Tire Pressure

Tel-Air Corporation, Dallas, Texas, is marketing and supervising installation of Tel-Air, a tire pressure "detective" that flashes a dashboard-warning that a dangerous drop in



pressure of a tire has occurred. According to the announcement, Tel-Air is the first company to solve the installation problem of such a device. Company-trained men are available to Tel-Air distributors who may assign them to installation jobs.

Tel-Air is described as a highly sensitive metering device attached to the hub of each wheel of a truck and connected to the valve stem of either single or dual tires. Metering is preset for any desired pressure and a small red dashboard warning light flashes an instant signal if the air pressure drops in any tire.

The manufacturer says that Tel-Air has been extensively roadtested and is now being used by big fleet owners. A complete rig can be installed, metered and tested in less than four hours, the company says.

Additional information is available from Tel-Air Corporation, 4250 Harry Hines Blvd., Dallas, Texas.

Enter L56 on Inquiry Card

Fuller Has Bulletin On Handling Systems

Three basic pneumatic handling systems for the safe, sanitary and speedy moving of dry bulk materials are described and illustrated in a new bulletin now available from Fuller Co., Castasauqua, Pa. This 8-page bulletin, reprinted from a technical report, includes block diagrams depicting the relationship of equipment components for straight vacuum, straight pressure and combination pull-push pneumatic handling systems.

Text material offers case history examples on installation, capacities, efficiency and economy in representative industries. Five photographs show various pieces of equipment, including a two-way gate, a remote control panel, a receiving filter, an exhaust blower and a dust collector. Also included is a table of typical materials conveyed in pneumatic handling systems.

For copies of Bulletin No. ER-G-2 write Fuller Co., Catasauqua, Pa.

Enter L57 on Inquiry Card

New Prestress Strand Brochure by Leschen

A brochure describing the properties and characteristics of 7-wire, high-strength, stress-relieved strand for prestressed concrete has been released by Leschen Wire Rope Division, H. K. Porter Co., Inc.

The publication contains typical stress-strain curves of 3/8-and 7/16-in. strand, the most popular sizes, together with data concerning breaking strength, yield strength at 1 per cent elongation, ultimate elongation in 24 in. and typical elongation in 10 ft. at recommended prestressing load.

Copies of the brochure may be obtained by writing Leschen Wire Rope Division, 2727 Hamilton Ave., St. Louis 12, Mo.

Enter L58 on Inquiry Card

Wire Rope Corporation Offers New Handbook

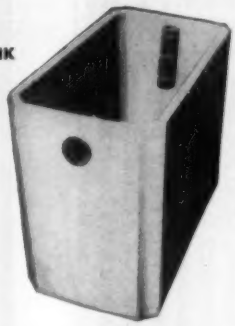
Issuance of a new handbook on the use and care of wire rope is announced by Wire Rope Corp. of America. It is written as an information piece for all who buy, sell or use wire rope. The handbook contains 36 pages of up-to-date information, well illustrated, on points of interest to users. The book explains how to select the right rope for specific needs; methods of socketing, splicing and installation and important points on safety. Free copies may be obtained by writing to Wire Rope Corp. of America, 609 N. 2nd. St., St. Joseph, Mo.

Enter L59 on Inquiry Card

SMITH

THE FIRST NAME YOU THINK OF for Profitable Septic Tank Equipment

THIS FORM ——— PRODUCES THIS TANK



This is the tested-and-proven method that insures fast, economical production of quality tanks in 500, 600, 750 and 1000 gallon capacities.

Well-reinforced, precision-built form pours and strips upright. Light-weight — requires minimum time for stripping and setting up. Form includes: Pouring pan, three section septic tank lid pans and pick up bar for handling.

All sections assembled with wedge bolts. Hoist descends into tank—no need for high rig.

NO ROYALTY ON SMITH STEEL SEPTIC TANK FORMS OR TRUCK HANDLING RIG.

SMITH truck rig is built for long, continuous service. One man operated. Can handle 3 tanks at one load.

Write or wire for specifications and prices.

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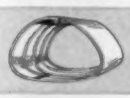
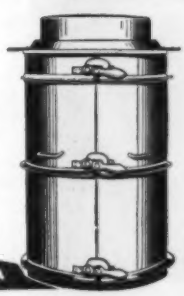


QUINN CONCRETE PIPE FORMS

Set The STANDARD For Producing Quality Pipe!

Over 50 years of experience go into the production of every Quinn Concrete Pipe Form. That's why the Quinn Heavy Duty form is recognized as the STANDARD the world over for producing quality concrete pipe at the lowest cost. Used in making pipe by vibration, spading, or tamping. Sizes for pipe 10" to 120" and larger. Tongue and groove (as shown) or bell end pipe in any length desired. No matter what size, shape, or length pipe you need, there's a Quinn pipe form made to fit your requirements. Write today for our FREE catalog and estimates.



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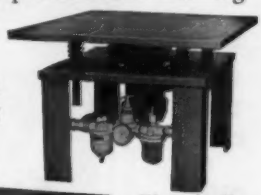
Designed and engineered for concrete products manufacturing

Air operated vibrating tables



Electrically operated vibrating tables

Tables designed for conveyor line operation

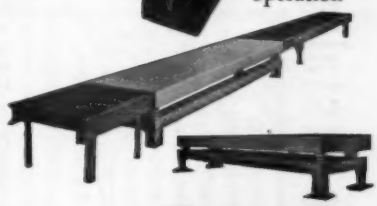
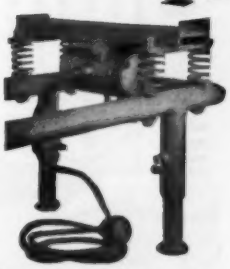


Table components for self assembly



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LAST YEAR WE INSTALLED A FLEMING-"10" SINGLE BLOCK MACHINE. THIS MACHINE PRODUCES A BLOCK UNSURPASSED IN QUALITY WHICH HAS REALLY HELPED US TO INCREASE OUR SALES.
BY PURCHASING THIS FLEMING-"10" WE SAVED THOUSANDS OF DOLLARS BECAUSE IT ALLOWED US TO USE OUR FORMER MIXER, ELEVATOR, RACKS AND BUILDINGS. IN ADDITION, IT ADEQUATELY FILLS OUR PRODUCTION REQUIREMENTS AT A PRICE WE COULD AFFORD TO PAY.
COUNTY MAP
WE ARE LOCATED IN A HIGHLY COMPETITIVE BLOCK AREA. WITHIN A 35 MILE RADIUS THERE ARE 10 OTHER BLOCK PLANTS IN OPERATION.
THAT'S RIGHT, DAD, AND TO COMPETE SUCCESSFULLY TODAY YOU MUST PRODUCE A TOP QUALITY BLOCK.
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AUTOMATIC SINGLE BLOCK MACHINE
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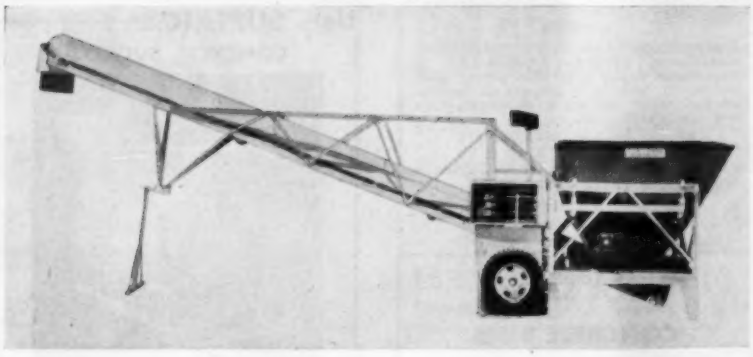

"Runabout" Batcher Now in Two Sizes

Cook Bros. Equipment Co., Los Angeles, Calif., exclusive distributors of the Challenge "Runabout" portable batch plant, announces that the "Runabout" is now being made in two different sizes. A 4-yd. model batches up to 35 cu.yd. per hour and a 6-yd. model produces up to 45 cu.yd. per hour. According to the distributor the "Runabout" is engineered with exclusive balanced design that permits one-man operation; has accurate weight batching with easy vision, over and under indicator; lightweight yet rugged construction and easy operation.

Mixer charging height on both models is 11-ft. 6-in. with running gear at ground level and will accommodate any size mixer. Conveyor boom has removable canvas cover to minimize dusting and is equipped with a rubber charging boot.

For descriptive literature and complete information write Cook Bros. Equipment Co., 3334 San Fernando Rd., Los Angeles 65, Calif.

Enter L60 on Inquiry Card

Soiltest, Inc. Develops New Briquette Tester

Soiltest, Inc., Chicago, Ill. announces the development of a portable briquette tester designated as CT-700-A. It was designed, the manufacturer says, to meet a growing demand for portability without sacrificing the standards required by the A.S.T.M. The new tester is described as applying loads at a constant rate to a specimen of cement mortar held in the jaws of the device. The failure point of the briquette specimen, in terms of pounds of load applied, gives the tensile strength of cement mortar according to the A.S.T.M. designation C-190.

Detailed information about the briquette tester may be obtained by writing Soiltest, Inc., 4711 W. North Ave., Chicago 39, Ill.

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Master Builders Tell "How" of Colored Floors

A new 4-page brochure describing the use of Colorcron for building life-long color in concrete floors has been issued by Master Builders Co., Cleveland, Ohio. The brochure is printed in four colors. The manufacturer says Colorcron offers a proven method of putting color in patios, swimming pools, driveways, walks and terraces or any interior or exterior surfaces of concrete. It is said to produce a more wear-resistant surface than plain concrete at only a few cents more per square foot. The manufacturer also states that it has proven to be the most economical means of producing colored floors for stores, showrooms, offices, churches, schools and public buildings. It is also claimed that Colorcron produces a high density, oil-resistant surface especially desirable for service stations.

The Colorcron folder may be obtained wothout cost by writing the Master Builders Co., 7016 Euclid ave., Cleveland 3, Ohio.

Enter L62 on Inquiry Card

New Manual Issued On Calcium Chloride

A 40-page technical manual on "Calcium Chloride in Concrete," has been issued by the Calcium Chloride Institute, Washington, D.C. It contains data on major effects of calcium chloride relating to its advantages on initial and final set, early strength, ultimate strength, cold weather protection and high early strength cement and air entrained concrete. The technical data includes the relation of calcium chloride to early strength, both compressive and flexural, ultimate strength, curing, workability and density, cold weather concreting. There is also a section on calcium chloride versus extra cement. Another section deals with special conditions under which calcium chloride may be used advantageously. Photographs show use of calcium chloride in concrete projects. Charts contain laboratory data from numerous nationally recognized technical organizations.

Single copies are available on request to the Calcium Chloride Institute, 909 Ring Bldg., Washington 6. D.C.

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Goodrich Tire Data Book Helpful to Truck Owners

Nine main factors within the control of truck owners and operators determine the degree of service that will be received from truck tires, according to the Highway Truck Tire Data Book published recently by B. F. Goodrich Tire Co., Akron, Ohio. Available without charge from B. F. Goodrich, the 42-page book lists and describes the nine factors as tire selection, mileage booster plan, inflation, loads and load distribution, mechanical irregularities, matching and spacing of duals, tire rotation, rims and retread before failure. The book also lists and describes the complete line of B. F. Goodrich truck tires, suggests safety rules to follow when servicing truck tires, and carries tables on load and inflation and weights and measures.

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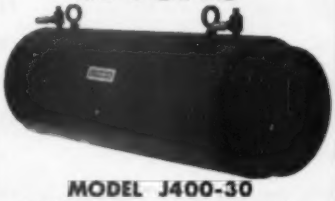

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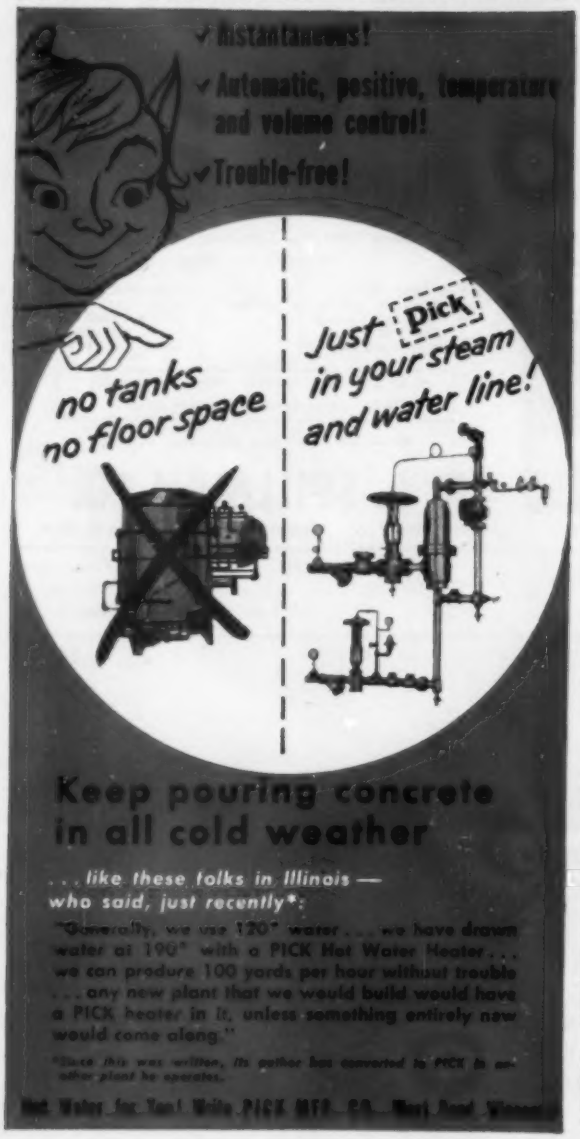
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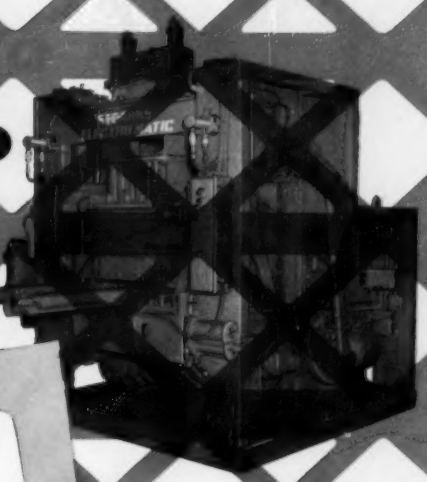

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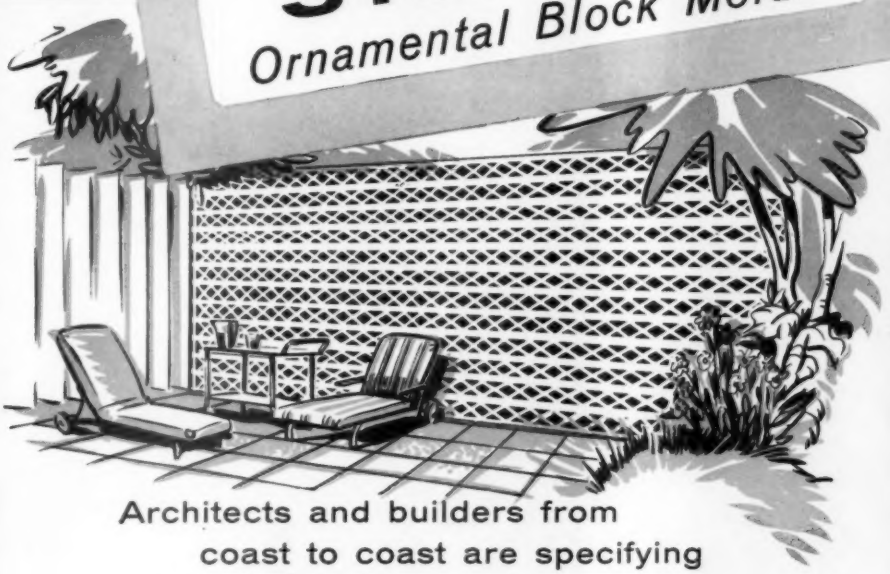

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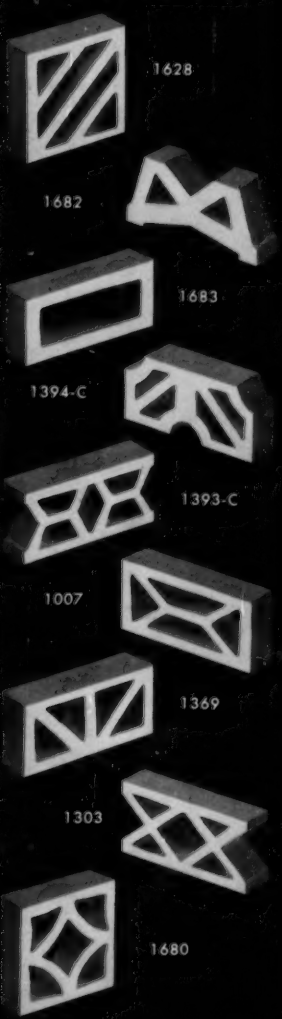

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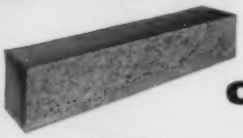

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